

MONTANA STATE LIBRARY

STATE DOCUMENTS COLLECTION

FEB 1 1993

MONTANA STATE LIBRARY
1515 E. 6th AVE.
HELENA, MONTANA 59520

UPDATE TO THE REPORT ON THE CONSERVATION STATUS OF
Grindelia howellii, A CANDIDATE THREATENED SPECIES

Taxon Name:	<u>Grindelia howellii</u> Steyermark
Common Name:	Howell's gum-weed
Family:	Asteraceae
States Where Taxon Occurs:	U.S.A., Montana, Idaho
Current Federal Status:	USFWS Notice of Review, Category 2
Recommended Federal Status:	USFWS Notice of Review, Category 2
Author of Update:	Diane S. Pavek
Original Date of Report:	31 October 1986
Date of Most Recent Revision:	31 January 1991
Individual to Whom Further Information and Comments Should be Sent:	

Lisa Ann Schassberger
Montana Natural Heritage Program
State Library Building
1515 E. 6th Avenue
Helena, MT 59620

V. NEW INFORMATION

21. **Record of revisions:** 21 September 1990; Diane S. Pavcek; Topics: I.1.D.; I.5.B.1.; I.5.B.2.; I.7.A.; I.7.B.1.; I.7.B.2.; I.7.D.6.; I.10.A.1.; I.10.A.2.; I.10.A.3.; II.12.; II.13.A.; II.13.B.1.; II.15.B.1.; III.17.C.1.; III.17.C.2.; III.18.

Note: Within the text, numbers in parentheses following site names refer to the three-digit element occurrence (EO) numbers.

- I.1.D. **History and knowledge of taxon:** Initial survey work for Grindelia howellii in Montana was completed by the Montana Natural Heritage in 1986. The initial report issued to the U.S. Fish and Wildlife Service contained location information on 55 populations, including maps and population data. Four new populations were located from 1987 to 1989: Smith Creek (056) and Elk Creek (057) occur in the Swan River drainage, and Black Canyon Road Junction (058) and Lost Prairie Creek (059) occur in the Blackfoot and Clearwater River drainages, respectively. During the 1990 survey, one new population Glacier Creek Road (060) was located in the Clearwater River drainage. Also, one population (Blackfoot Roadside (035)) was apparently extirpated. Thus information is available on 60 populations of G. howellii in Montana, one of which may be permanently extirpated.

In Montana, G. howellii populations establish in early successional habitats such as roadbeds and disturbed fields, or in other areas where extirpation is likely. Thus, a follow-up study was done in 1990 to relocate and collect population data at 27 sites in Missoula and Powell counties, Montana. Full occurrence records for the populations located since the 1986 report are in Appendix A, New Populations: Element Occurrence Records and Maps, pp. 16-26. Updated information and exact locations for the 27 resurveyed populations are in Appendix B, Resurveyed Populations: Element Occurrence Records and Maps, pp. 27-66.

- I.5.B.1. **Populations currently known extant:** There are currently a total of 60 known populations of G. howellii in Montana. Information and exact locations for the five populations discovered in Montana since 1986 are in Appendix A, New Populations: Element Occurrence Records and Maps, pp. 16-26. Information and exact locations for the 27 resurveyed

populations are in Appendix B, Resurveyed Populations: Element Occurrence Records and Maps, pp. 27-66. Records for the other 28 occurrences are found in the original report by Shelly (1986).

- I.5.B.2. **Populations known or assumed extirpated:** One population is suspected of being extirpated: Blackfoot Roadside (035). Recent road grading apparently eliminated the plants of this population. However, the site should be checked in subsequent years. Depending on the longevity of the seeds in the soil seed bank, plants may emerge in future years if seeds are exposed or moved to the soil surface at or near the site.

- I.7.A. **GENERAL SUMMARY:** Twenty-seven populations of G. howellii were surveyed during 6-10 August 1990 for the number of flowering/fruitlet plants and basal rosettes. During this census, one population was found to be extirpated, and a new population was located. Table 1, pp. 7-8, contains tabulations of plants present during the original survey, and during the 1990 survey. The addition of five new populations since 1986 does not extend the geographic range of the species in Montana beyond that previously known in the Swan, Blackfoot, and Clearwater River valleys, but adds about 500 more plants to the total number of observed plants. Current total number of individual plants is difficult to estimate since only 27 populations were censused in 1990, and population sizes in this species appear to fluctuate widely (Table 1). Of the 27 populations that were observed in 1986 or 1988, and again in 1990, 10 increased in numbers, 15 decreased, and 2 populations were essentially unchanged. The net change was an increase of about 500 plants. The 45 populations observed in 1986 totalled about 15,500 plants. The total of latest observations for 50 populations is about 16,500 plants. Ten locations have no population data since before 1986. Thus, a current total estimate of about 16,000 individual plants in 50 populations is perhaps most reasonable.

- I.7.B.1. **Known populations:** Sixty populations of G. howellii have been documented in Montana (Table 1). One population (Blackfoot Roadside (035)) has likely been extirpated by road maintenance activities. The latest population estimates (1986-1990) for the 50 populations shows that 16 populations had less than 20 individuals, and 12 populations had 20-100 individuals. Of the remaining 22 populations, 12 had between 101 and 500

plants, six had between 501-1000 plants, four had over 1000 individuals. Thus the majority of the populations are quite small, with approximately 55 percent of the populations containing under 100 plants, and approximately 78 percent containing fewer than 500 plants. The final 10 populations have no accurate population counts (Table 1). All populations occur in Missoula and Powell counties, Montana.

I.7.B.2. General demographic details: The 1990 survey assessed population survivorship characters: seed dispersal and establishment (= number of basal rosettes) and reproduction (= number of flowering or fruiting plants) Data collected for the 27 populations are in Table 2, pp. 9-14.

I.7.D.6. Survival and mortality: Better than half (15) of the 27 populations surveyed in 1990 declined from the 1986 or 1988 population levels (Table 1). Two populations contained approximately the same number of individuals as the 1986 counts, and 10 populations increased in size. Of the twelve populations with greater than 25 plants, there was a nearly even split between immature (rosette stage) and adult plants (flowering stage) (Table 2). Thus, at least in these populations, reproduction and seedling establishment appears to be high. However, road maintenance and use, herbicide applications, and cattle grazing affected the roadside habitat of G. howellii and reduced plant reproduction and survival in the other 13 populations (Table 2).

I.10.A.1. Review of past management and land-use experiences: The Cottonwood Creek population (040) on the Blackfoot-Clearwater Wildlife Management area underwent a substantial decline. This population was rated as the "best" G. howellii population in Montana during the 1986 survey. In 1990, only four basal rosettes were located during the survey. The occurrence of dead spotted knapweed (Centaurea maculosa) plants, the absence of spotted knapweed basal rosettes or other broadleaf plants, and the presence of dead shrubs in a 20 foot strip along the fence suggest that a persistent herbicide was used on the area. Cattle grazing in the fenced area may have created additional stress on the G. howellii population. Mike Thompson, Montana Fish, Wildlife, and Parks Dept., confirmed that Tordon was used in spot treatments during fall 1989 on this pasture. He was unaware of the G. howellii population in the pasture.

I.10.A.2. Performance under changed conditions: No management practices currently exist that are designed specifically for G. howellii. Apparently, G. howellii does not survive in areas that have been treated with Tordon, as evidenced by the decline of the Cottonwood Creek (040) population. While it readily grows in disturbed habitats such as roadsides, it cannot survive heavy, continued road maintenance involving grading or scraping, as indicated by the apparent extirpation of the Blackfoot Roadside (035) population.

I.10.A.3. Current management policies and actions: Mike Thompson is now informed of G. howellii populations occurring on the Blackfoot-Clearwater Wildlife Management area.

The Idaho Natural Heritage Program is in the process of writing a draft species management guide for this species for the St. Joe National Forest. This should be completed by summer, 1991. However, this guide may not apply well to Montana populations, as Idaho populations are quite localized (all occur within one section of land (640 acres)), and occur in primarily native habitat (forest openings) (Chris Lorain, Idaho Natural Heritage Program, pers. comm.).

II.12. General assessment of vigor, trends, and status: Seedling establishment was very good in 14 of the populations resurveyed in 1990. Basal rosettes were limited or not present, in six populations, which suggests difficulty in germination and/or recruitment from the seed bank. This may be due to drought or competition. The Cottonwood Creek population (040) had no flowering plants (only 4 basal rosettes were observed). No plants were observed at the Blackfoot Roadside (035) population or at the main subpopulation at Blackfoot Roadside II (036); road maintenance is suspected to have eliminated both populations. However, one subpopulation of 130 plants was located 1/8th mile north of the original population at Blackfoot Roadside II (036). Therefore, the entire population was not extirpated.

In Montana, Grindelia howellii is dependent on early successional habitats most often provided by road grading or road establishment. Nonetheless, populations can also be extirpated by these same activities or through weed control activity.

Trends in population status are not easy to estimate from only two censuses (1986 and 1990). By 1990, more

then half (15) of the 27 populations censused had declined in numbers of individuals. However, the remaining populations either maintained population sizes similar to the 1986 counts (2), or increased in numbers of individuals (10). The net change in the 27 populations from 1986 to 1990 was an increase of about 525 plants. Annual surveys should be conducted on a sample of populations over a five year period to monitor population fluctuations and provide a more complete information base.

II.13.A. Recommendation to U.S. Fish and Wildlife Service:
Based on the results of the 1986 and 1990 population surveys (variable and low population numbers, and the vulnerability of populations to extirpation), it is recommended that Grindelia howellii be retained as a Category 2 species.

II.13.B.1. U.S. Forest Service: Grindelia howellii should remain on the U.S. Forest Service, Region 1 sensitive plant species list. Population responses to perturbations, natural or human-caused, are unclear at present, and existing information is incomplete on population dynamics.

II.15.B.1. Permanent monitoring plots: Two sites were recommended in 1986 for long-term studies. One site, Holland Lake (001) was not resurveyed; the other site (Cottonwood Creek 040) has been seriously impacted by human activity. The Cottonwood Creek site was sprayed with the herbicide Tordon for control of spotted knapweed, Centaurea maculosa. The 1986 survey estimated 1200-1400 plants present at Cottonwood Creek in native vegetation; the 1990 survey found only four plants remaining. Permanent plots at this site would chart the recovery or extirpation of G. howellii. Population levels between 1986 and the date of disturbance are not known. Length of recovery time and numbers of individual plants needed for recovery may be ascertained from regular monitoring of this population. Additionally, the one population suspected of being extirpated by road grading (Blackfoot Roadside (035)) should be checked to ascertain whether it will recover after such an event.

A permanent population monitoring plot was established in 1989 by Andy Kratz (contractor,

Lolo National Forest) in the G. howellii population at Black Canyon Road Junction (058), about 15 miles east of Seeley Lake on Lolo National Forest land. Data on the establishment of the monitoring plot are deposited with Montana Natural Heritage Program, Helena, Montana. The plot was not read in 1990.

III.17.C.1. Surveys by original author:

27 July 1988, 15 July 1987: Surveys in Swan River Valley by J.S. Shelly; field notes, population surveys, photographs, and herbarium specimens.

III.17.C.2. Surveys by contractors:

4 and 7 August 1989: Survey in Missoula and Powell counties by Andy M. Kratz, Lolo National Forest; field notes, population surveys, photographs.

6-10 August 1990: Surveys in Missoula and Powell counties by Diane S. Pavsek, Montana Natural Heritage Program; field notes, population surveys, and photographs.

III.18. Summary of materials on file: All detailed field forms, maps, and color slides are on file at the office of the Montana Natural Heritage Program.

Table 1. Total numbers of individuals in Grindelia howellii populations 1986-1990. The most recent population counts available for each site are the highlighted values within the table (10 sites have no counts).

<u>Survey site</u> <u>(Element Occurrence Number)</u>	<u>1986</u>	<u>1990</u>
Holland Lake (001)	1500-2000	*
Monture Creek (002)	1000's	*
Blanchard Lake (003)	*	*
Sunflower Mountain (004)	*	*
Blanchard Flats (005)	14	*
Vaughn Ranch (006)	9	6
McNamara Bridge (007)	*	*
Potomac (008)	*	*
Blue Slide (009)	*	*
Salmon-Seeley Road (010)	14	*
Clearwater Access (011)	*	*
Jones Lake (012)	42	10
Spring Creek (013)	49	*
Angevine (014)	*	*
Greenough Roadside (015)	*	*
Holland-Pierce Creek (016)	*	*
Condon (017)	*	*
Dick Creek (018)	150-200	797
Ovando-Champion (019)	250-300	1594
Mollet Park (020)	500-600	272
Mollet Park South (021)	70-90	125
Martin Park (022)	50	*
Doney Lake (023)	60	86
Vaughn Creek (024)	54	1
Placid-Lost Prairie Road (025)	45	248
Horsehead Road (026)	325-400	*
Lost Horse Creek (027)	200-250	11
Lost Horse Road (028)	45	6
Lost Horse Spur Road (029)	175-200	536
Lost Horse-Blanchard Road (030)	85	60
Blanchard Uplands (031)	800-1000	*
Spring Creek Lake (032)	16	*
Dick Creek East (033)	38	84
Pearson Creek (034)	228	61
Blackfoot Roadside (035)	80	00
Blackfoot Roadside II (036)	15	130#
Champion Game Range Road (037)	126	*
Upsata Lake (038)	250-300	648
Upsata-Woodworth Junction (039)	350-400	172
Cottonwood Creek (040)	1200-1400	4
Blackfoot Backroads (041)	68	42
Woodworth (042)	500-600	*
Monture Creek Access (043)	225-250	7
Clearwater Backroad (044)	150-160	415
Shanley Creek (045)	44	*

Table 1. (cont.)

Lower Cottonwood Road (046)	27	21
Cozy Corners (047)	3000	>3000
Spring Creek Road (048)	40	1
Owl Creek Uplands (049)	140	*
Placid Lake Clearcut (050)	8	*
Barber Creek (051)	12	*
South Fork Barber Creek (052)	23	*
Greenough School Pasture (053)	500-600	*
Little Fish Creek (054)	27	*
Greenough (055)	150	*
<u>Additional populations:</u>	<u>1987-1989</u>	<u>1990</u>
1987		
Smith Creek (056)	30-40	*
1988		
Elk Creek (057)	40	9
1989		
Black Canyon Road Junction (058)	300	*
Lost Prairie Creek (059)	150	*
1990		
Glacier Creek Road (060)	*	9

* Population not surveyed in 1986 or 1990.

New subpopulation; main population was not seen.

@ Population apparently extirpated.

Table 2. General demographic details of new or recently resurveyed populations of Grindelia howellii. Table is organized by occurrence number.

Occurrence number: 006 Site name: VAUGHN RANCH
COUNTY: MISSOULA
Acreage: less than 1
Population Data: 6 plants (5 flowering, 1 rosette) counted during 1990 survey. Plants are confined to road edge; plants are close to or under Rosa spp.; 9 plants present in 1986.

Occurrence number: 012 Site name: JONES LAKE
COUNTY: POWELL
Acreage: less than 1
Population Data: 10 flowering plants counted during 1990 survey; plants confined to edge of road; 42 plants present in 1986.

Occurrence number: 018 Site name: DICK CREEK
COUNTY: POWELL
Acreage: 1
Population Data: 797 plants (514 flowering, 283 rosettes) counted during 1990 survey; bridge out has reduced traffic and road maintenance; plants robust with many flowering stems per plant; 150-200 plants present in 1986.

Occurrence number: 019 Site name: OVANDO-CHAMPION
COUNTY: POWELL
Acreage: 2
Population Data: 1594 plants (836 flowering, 758 rosettes) counted during 1990 survey; population healthy despite crushed and cropped plants from vehicle use and cattle grazing; 250-300 plants present in 1986.

Occurrence number: 020 Site name: MOLLET PARK
COUNTY: POWELL
Acreage: 2
Population Data: 272 plants (90 flowering, 182 rosettes) counted during 1990 survey; plants confined to roadsides and in junction; no plants found in tree furrows; no use of herbicides evident; 500-600 plants present in 1986.

Table 2. (cont.)

Occurrence number: 021	Site name: MOLLET PARK SOUTH
COUNTY: POWELL	
Acreage: 3	
Population Data: 125 plants (63 flowering, 62 rosettes) counted during 1990 survey; most plants (116) are in west subpopulation; 60-80 plants in west subpopulation and 10 plants in east subpopulation present in 1986.	
Occurrence number: 023	Site name: DONEY LAKE
COUNTY: POWELL	
Acreage: 2	
Population Data: 86 plants (41 flowering, 45 rosettes) counted during 1990 survey; very dense knapweed occurring; 60 plants present in 1986.	
Occurrence number: 024	Site name: VAUGHN CREEK
COUNTY: MISSOULA	
Acreage: less than 1	
Population Data: 1 flowering plant counted 1/8 mile west of this site during 1990 survey; 54 plants present in 1986.	
Occurrence number: 025	Site name: PLACID-LOST PRAIRIE ROAD
COUNTY: MISSOULA	
Acreage:	
Population Data: Did not see any plants at the 1986 site during 1990 survey but found 248 plants 0.5 mi E; 45 plants present in 1986.	
Occurrence number: 027	Site name: LOST HORSE CREEK
COUNTY: MISSOULA	
Acreage: less than 1	
Population Data: 11 flowering plants (0 rosettes) counted during 1990 survey; plants are in two widely separated subpopulations; 200-250 plants present in 1986.	
Occurrence number: 028	Site name: LOST HORSE ROAD
COUNTY: MISSOULA	
Acreage: less than 1	
Population Data: 6 flowering plants (0 rosettes) counted during 1990 survey; plants on both sides of the road; 45 plants present in 1986.	
Occurrence number: 029	Site name: LOST HORSE SPUR ROAD
COUNTY: MISSOULA	
Acreage: 2	
Population Data: 536 plants (274 flowering, 262 rosettes) counted during 1990 survey; robust plants; 175 plants present in 1986.	

Table 2. (cont.)

Occurrence number: 030

Site name: LOST HORSE-
BLANCHARD ROAD

COUNTY: MISSOULA

Acreage: 5

Population Data: 60 plants counted during 1990 survey; plants
growing in center of road and along both sides;
85 plants present in 1986.

Occurrence number: 033

Site name: DICK CREEK EAST

COUNTY: POWELL

Acreage: 1

Population Data: 84 plants (58 flowering, 26 rosettes) counted
during 1990 survey; plants confined to
roadsides, not extending into grass; slash
piles long since gone; 38 plants present in
1986.

Occurrence number: 034

Site name: PEARSON CREEK

COUNTY: POWELL

Acreage: 1

Population Data: 3 flowering plants counted during 1990 survey;
plants on south side of road; bulldozer
activity evident in junction; 58 plants (17
flowering, 41 rosettes) located on side road 30
yards west of Pearson junction; 228 plants
present in 1986.

Occurrence number: 035

Site name: BLACKFOOT ROADSIDE

COUNTY: POWELL

Acreage:

Population Data: Could not relocate this population during 1990
survey; 80 plants present in 1986.

Occurrence number: 036

Site name: BLACKFOOT ROADSIDE
II

COUNTY: POWELL

Acreage: 1

Population Data: 0 plants counted for the main population during
1990 survey; new ditch and recent road grading
evident; 1/8 mile north on road were 130 plants
(54 flowering, 76 rosettes) that were crushed
and buried by recent grading; 15 plants present
in 1986.

Table 2. (cont.)

Occurrence number:	038	Site name:	UPSATA LAKE
COUNTY:	POWELL		
Acreage:	8		
Population Data:	648 plants (480 flowering, 168 rosettes) counted during 1990 survey; population located directly across from fish access road, smaller population across road was not relocated; this is State-University of Montana land; 250-300 plants present in 1986.		
Occurrence number:	039	Site name:	UPSATA-WOODWORTH JUNCTION
COUNTY:	POWELL		
Acreage:	3		
Population Data:	172 plants (88 flowering, 84 rosettes) counted during 1990 survey in the southern population between low hills; 21 additional plants were in a small fenceline population to the east; 1 plant was in the road junction; 350-400 plants present in 1986.		
Occurrence number:	040	Site name:	COTTONWOOD CREEK
COUNTY:	POWELL		
Acreage:	less than 1		
Population Data:	4 basal rosettes (0 flowering) counted during 1990 survey; entire NE corner and along fenceline has been spot-treated with Tordon (source: Mike Thompson, Montana Fish and Game); private land posted--no flowering plants visible; 1200-1400 plants present in 1986.		
Occurrence number:	041	Site name:	BLACKFOOT BACKROADS
COUNTY:	POWELL		
Acreage:	5		
Population Data:	42 plants (37 flowering, 5 rosettes) counted during 1990 survey; robust plants with many flowering stems per plant; 68 plants present in 1986.		
Occurrence number:	043	Site name:	MONTURE CREEK ACCESS
COUNTY:	POWELL		
Acreage:	less than 1		
Population Data:	7 flowering plants counted during 1990 survey; 2 plants were along gravel bar, area grazed; 5 plants located across river; no plants were found along entire ridge; 225-250 plants present in 1986.		

Table 2. (cont.)

Occurrence number: 044

Site name: CLEARWATER
BACKROAD

COUNTY: MISSOULA

Acreage: 5

Population Data: 415 plants (309 flowering, 106 rosettes) counted during 1990 survey; robust, sparsely distributed in road center and along both sides; 150-160 plants estimated present in 1986.

Occurrence number: 046

Site name: LOWER COTTONWOOD
ROAD

COUNTY: MISSOULA

Acreage: 1

Population Data: 21 plants (12 flowering, 9 rosettes) counted during 1990 survey; small, sparsely distributed plants; 27 plants present in 1986.

Occurrence number: 047

Site name: COZY CORNERS

COUNTY: MISSOULA

Acreage: 10

Population Data: Estimate 3000+ plants (flowering and seedlings) in 1990; robust plants along roadsides and in two more pastures to the south of this original site; plants extend right up to buildings at Cozy Corners; estimated 3000 plants present in 1986.

Occurrence number: 048

Site name: SPRING CREEK ROAD

COUNTY: MISSOULA

Acreage: less than 1

Population Data: 1 flowering plant counted during 1990 survey; plant in ditch north of junction, road obviously graded; 40 plants present in 1986.

Occurrence number: 056

Site name: SMITH CREEK

COUNTY: MISSOULA

Acreage: 1

Population Data: Estimated 30-40 plants (12 flowering and 18-28 rosettes) in 1987.

Occurrence number: 057

Site name: ELK CREEK

COUNTY: MISSOULA

Acreage: less than 1

Population Data: 9 plants counted during 1990 survey; 40 flowering plants observed and additional basal rosettes present in 1988.

Table 2. (cont.)

Occurrence number: 058	Site name: BLACK CANYON ROAD JUNCTION
COUNTY: POWELL	
Acreage: less than 1	
Population Data:	Approximately 300 plants present in 1989; some plants are small, vegetative with few leaves, appear to be young.
Occurrence number: 059	Site name: LOST PRAIRIE CREEK
COUNTY: MISSOULA	
Acreage: less than 1	
Population Data:	Approximately 150 plants in several patches present in 1989.
Occurrence number: 060	Site name: GLACIER CREEK ROAD
COUNTY: MISSOULA	
Acreage: <1	
Population Data:	Nine plants in road into sale area. No seedlings observed.

Literature cited

Shelly, J.S. 1986. Report on the conservation status of Grindellia howellii, a Candidate Threatened Species. Unpublished report to the U.S. Fish and Wildlife Service, Denver, Colorado. 139 pp.

APPENDIX A

New Populations: Element Occurrence Records and Maps

ELEMENT OCCURRENCE RECORD

17

Grindelia howellii

Occurrence number: 056

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: SMITH CREEK

EO rank: D

EO rank comments: SMALL POPULATION; IN A DISTURBED AREA.

County: MISSOULA

USGS quadrangle: CONDON

Township-range: 021N017W Section: 13 Precision: S

Township-range comments: W2SE4

Survey date: 1987-07-15	Elevation: 3640
First observation: 1987	Slope/aspect:
Last observation: 1987-07-15	Size (acres): 1

Location:

SWAN VALLEY, ALONG OLD LOGGING TRAIL, 0.95 AIR MILE SOUTH- EAST OF
CONDON LOOKOUT TOWER; ABOUT 0.15 AIR MILE NORTH OF SMITH CREEK; ABOUT
1.4 MILES EAST OF STATE HWY 83.

Element occurrence data:

12 FLOWERING PLANTS; EST. 30-40 TOTAL INCLUDING STERILE ROSETTES.

General site description:

ALONG AN OLD LOGGING ROAD, GRAVELLY LOAM SOIL; LAOC/PICO/ PIPO/PSME,
WITH ACHILLEA MILLEFOLIUM, CAMPANULA ROTUNDIFOLIA, SYMPHORICARPOS,
CENTAUREA MACULOSA.

Land owner/manager:

BURLINGTON NORTHERN LAND
FLATHEAD NATIONAL FOREST, SWAN LAKE RANGER DISTRICT

Comments:

VOUCHER-SHELLY, J.S. (1374), 1987, MONTU.

Information source:

SHELLY, J.S. 1987. FIELD SURVEYS IN LAKE AND MISSOULA COUNTIES OF
23-26 & 30 JUNE, 1-17 & 28-30 JULY.

Grindelia howellii

Occurrence number: 057

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: ELK CREEK
EO rank: D
EO rank comments: SMALL ROADSIDE POPULATION

County: MISSOULA

USGS quadrangle: HEMLOCK LAKE

Township-range: 020N017W Section: 15 Precision: S
Township-range comments: NE4NW4

Survey date: 1988-07-27	Elevation: 3950
First observation: 1988	Slope/aspect:
Last observation: 1990-08-	Size (acres): 1

Location:

SWAN VALLEY, SOUTH SHOULDER OF FLATHEAD N.F. ROAD #9591, 0.83 AIR
MILES EAST OF ELK CREEK, CA. 3.2 AIR MILES SOUTHWEST OF CONDON.

Element occurrence data:

1988: 40 FLOWERING PLANTS OBSERVED, & ADDITIONAL BASAL ROSETTES. 1990:
9 PLANTS COUNTED.

General site description:

ON ROAD SHOULDER, IN HEAVY LOAM AND CLAY LOAM SOIL; WITH CENTAUREA
MACULOSA, PHLEUM PRATENSE, LOTUS CORNICULATUS, PINUS CONTORTA,
ACHILLEA MILLEFOLIUM.

Land owner/manager:

BURLINGTON NORTHERN LAND

Comments:

VOUCHER - SHELLY, J.S. (1501), 1988, MONTU.

Information source:

SHELLY, J.S. 1988. FIELD SURVEYS IN LAKE AND MISSOULA COS. OF 14-15
JULY, 21-22 JULY, & 26-29 JULY.

ELEMENT OCCURRENCE RECORD
Grindelia howellii

19

Occurrence number: 058

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: BLACK CANYON ROAD JUNCTION
EO rank: CD
EO rank comments: SEEMS TO REQUIRE HEAVILY DISTURBED SITES
IN THIS AREA.

County: POWELL

USGS quadrangle: WOODWORTH

Township-range: 016N013W Section: 21 Precision: S
Township-range comments: SW4, 20SE4

Survey date: 1989-08-07 Elevation: 4800
First observation: 1989 Slope/aspect: - / SOUTH
Last observation: 1989-08-07 Size (acres): 0

Location:

FROM OVANDO GO NORTH ON MONTURE CREEK ROAD (# 89) THEN WEST CA. 6
MILES ON FS ROAD # 477.

Element occurrence data:

CA. 300 PLANTS; SOME PLANTS ARE SMALL, VEGETATIVE, WITH FEW LEAVES -
APPEAR TO BE YOUNG.

General site description:

ON OLD, UNUSED ROADS, LOCATED ON DRY SOUTH-FACING SLOPE.

Land owner/manager:

CHAMPION INTERNATIONAL LAND
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:

AIR PHOTO (#2081-131) TAKEN 25 AUGUST 1982. PERMANENT POPULATION
MONITORING PLOT ESTABLISHED AT SITE ON 10 AUGUST 1989 BY A. KRATZ,
LOLO N.F.

Information source:

KRATZ, A. M. 1989. [GRINDELIA HOWELLII: SUMMARY OF 1989 FIELDWORK.]

ELEMENT OCCURRENCE RECORD
Grindelia howellii

20

Occurrence number: 059

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: LOST PRAIRIE CREEK
EO rank: CD
EO rank comments: SPECIES SEEMS TO REQUIRE DISTURBED
SITES.

County: MISSOULA

USGS quadrangle: SALMON LAKE

Township-range: 015N014W Section: 06 Precision: S
Township-range comments:

Survey date:	1989-08-04	Elevation:	4900
First observation:	1989	Slope/aspect:	
Last observation:	1989-08-04	Size (acres):	0

Location:

FROM SR 83 CROSS THE OUTLET OF SALMON LAKE ON LOST PRAIRIE CREEK ROAD,
THEN STAY RIGHT AT THE POWERLINES.

Element occurrence data:

CA. 150 PLANTS IN SEVERAL PATCHES.

General site description:

OLD ROAD WEED COMMUNITY IN PSEMEN/SPIBET HABITAT TYPE.

Land owner/manager:

CHAMPION INTERNATIONAL LAND

Comments:

Information source:

KRATZ, A. M. 1989. [GRINDELIA HOWELLII: SUMMARY OF 1989 FIELDWORK.]

ELEMENT OCCURRENCE RECORD
Grindelia howellii

21

Occurrence number: 060

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: GLACIER CREEK ROAD
EO rank:
EO rank comments:

County: MISSOULA

USGS quadrangle: CYGNET LAKE

Township-range: 020N017W Section: 25 Precision: S
Township-range comments: SE4NE4

Survey date:	Elevation: 4000
First observation: 1990	Slope/aspect:
Last observation: 1990-08-07	Size (acres): 0

Location:

FROM CONDON, TAKE STATE HIGHWAY 83 SOUTH CA. 5.5 MILES TO ELK
CREEK/GLACIER LAKE ROAD TURNOFF (F.S. ROAD #561). GO WEST 1.0 MILE,
THEN NORTH ON F.S. ROAD #9591 CA. 0.2 MILE.

Element occurrence data:

NINE PLANTS ON ROAD INTO SALE AREA, NO SEEDLINGS OBSERVED.

General site description:

ASSOCIATED SPECIES: PLANTAGO, ASTER, CENTAUREA.

Land owner/manager:

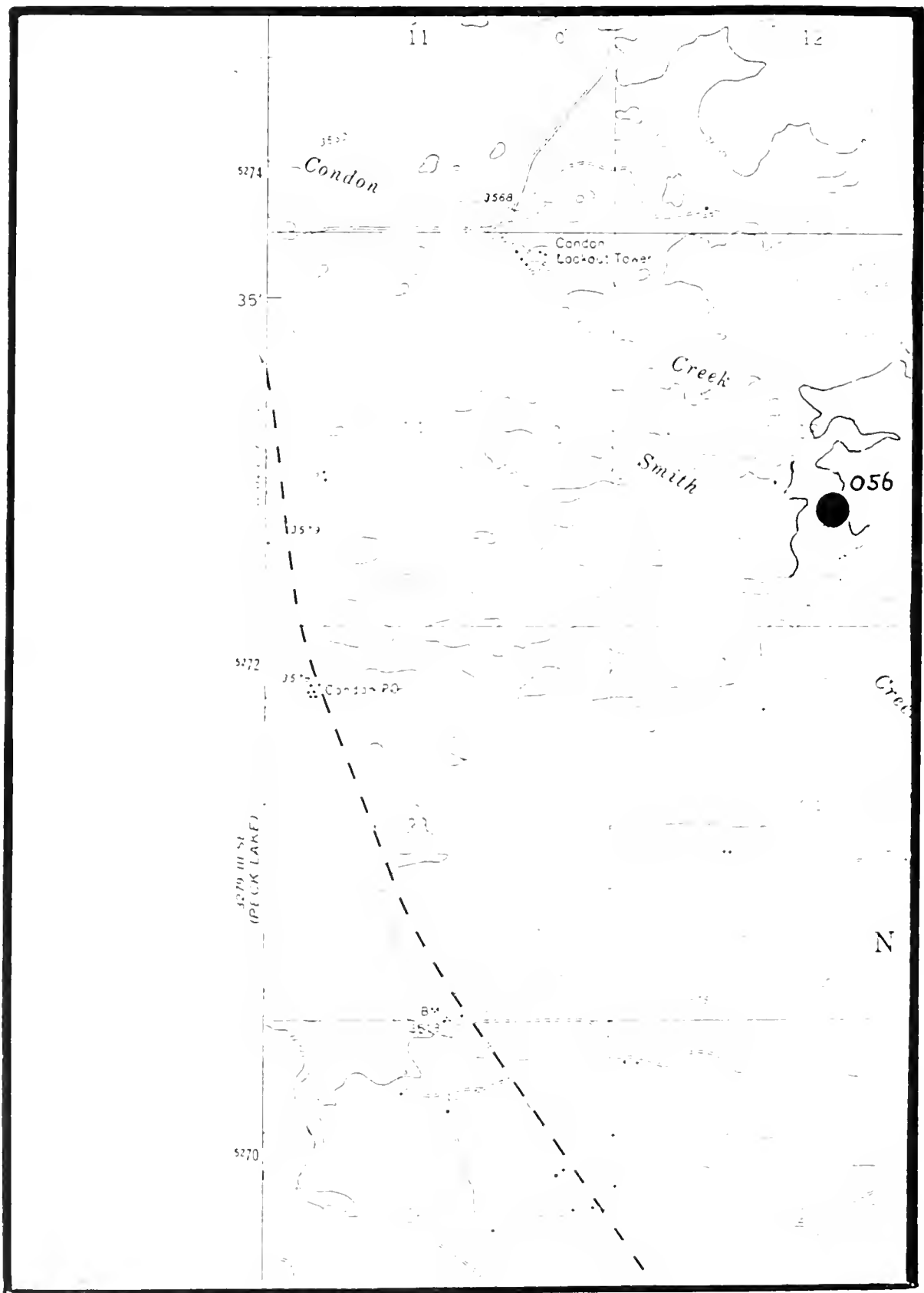
BURLINGTON NORTHERN LAND
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:

NONE.

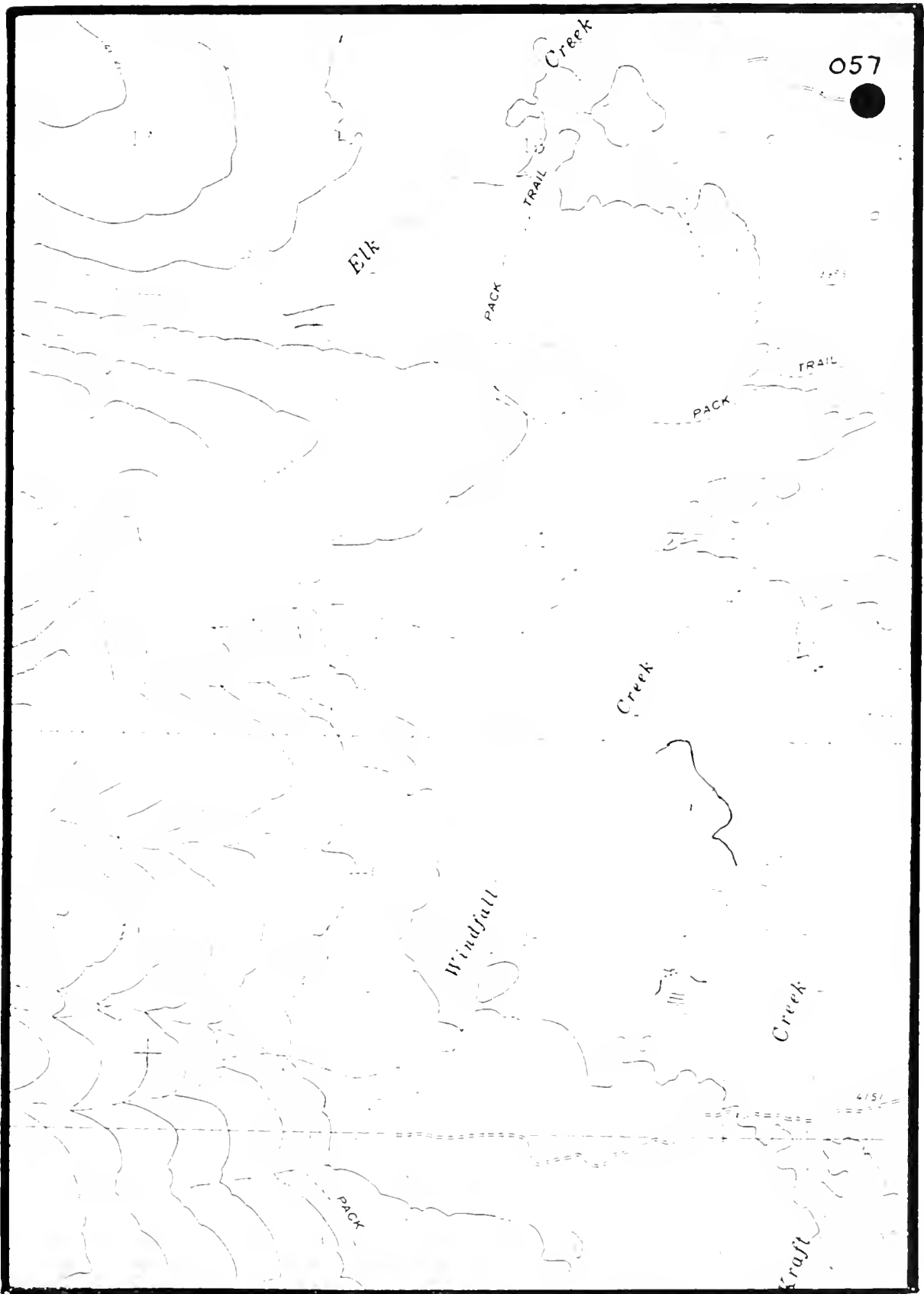
Information source:

PAVEK, DIANE. c/o MONTANA NATURAL HERITAGE PROGRAM.



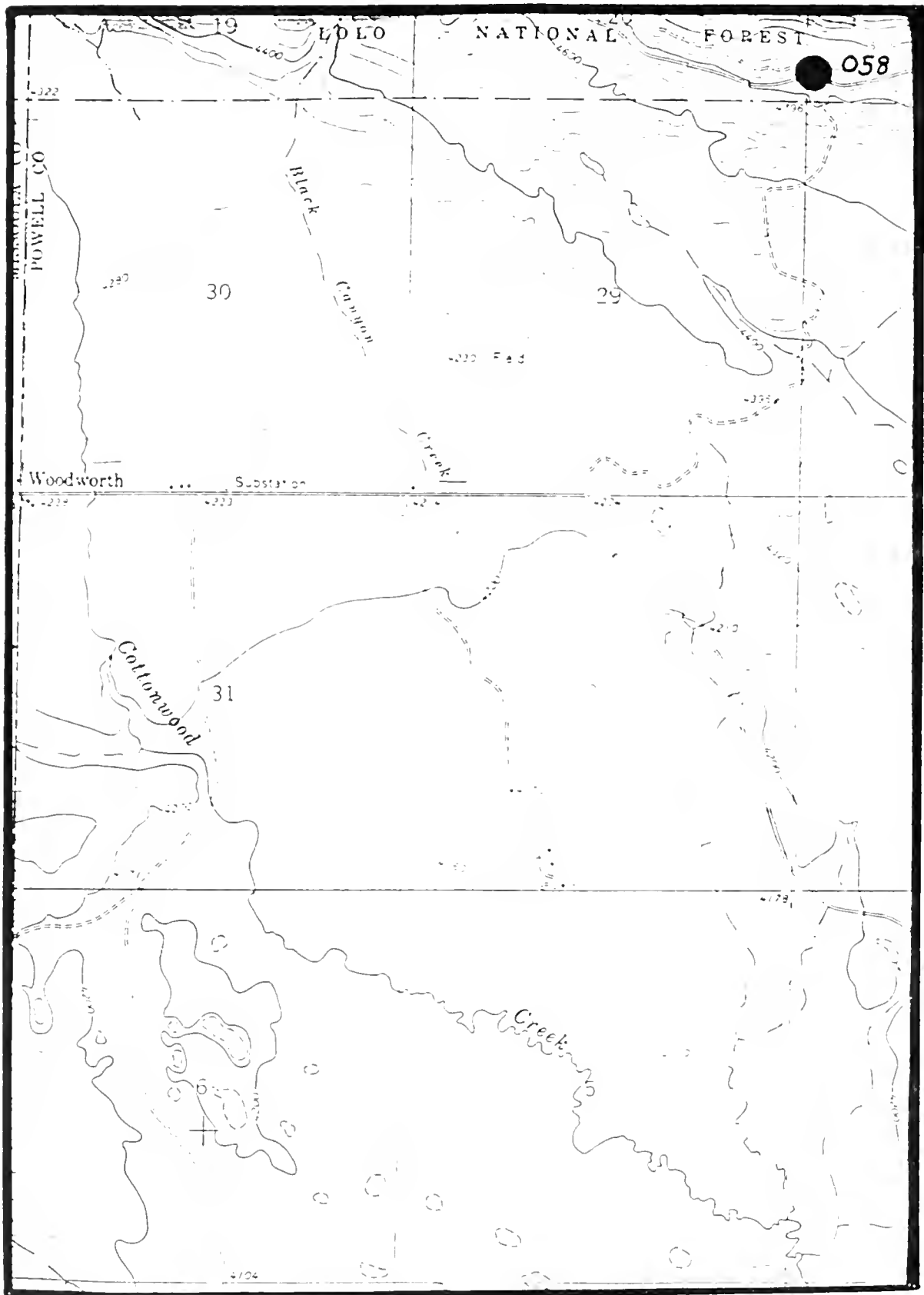
U.S.G.S. Condon (7.5') Quadrangle

Smith Creek (056)



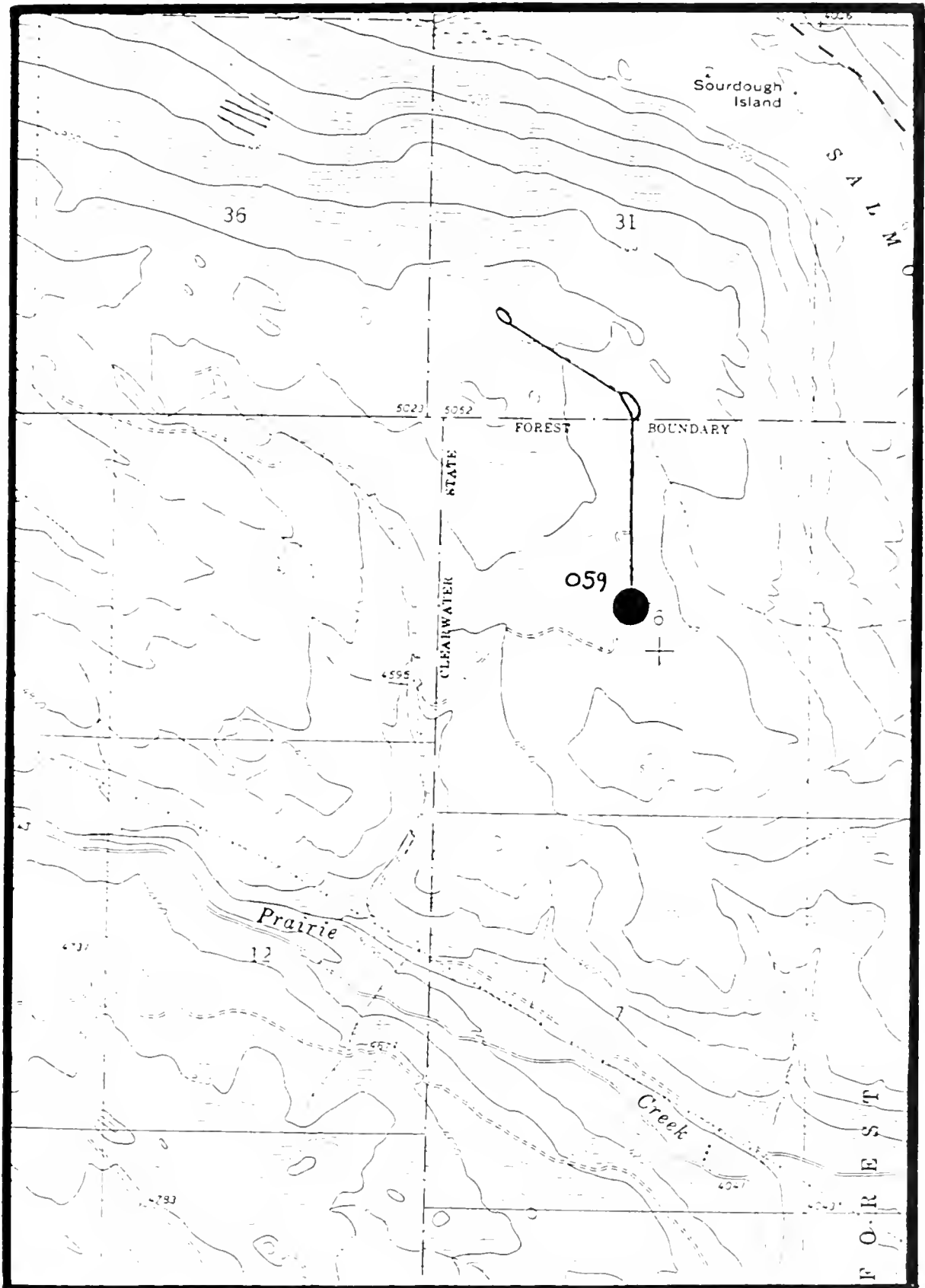
U.S.G.S. Hemlock Lake (7.5') Quadrangle

Elk Creek (057)



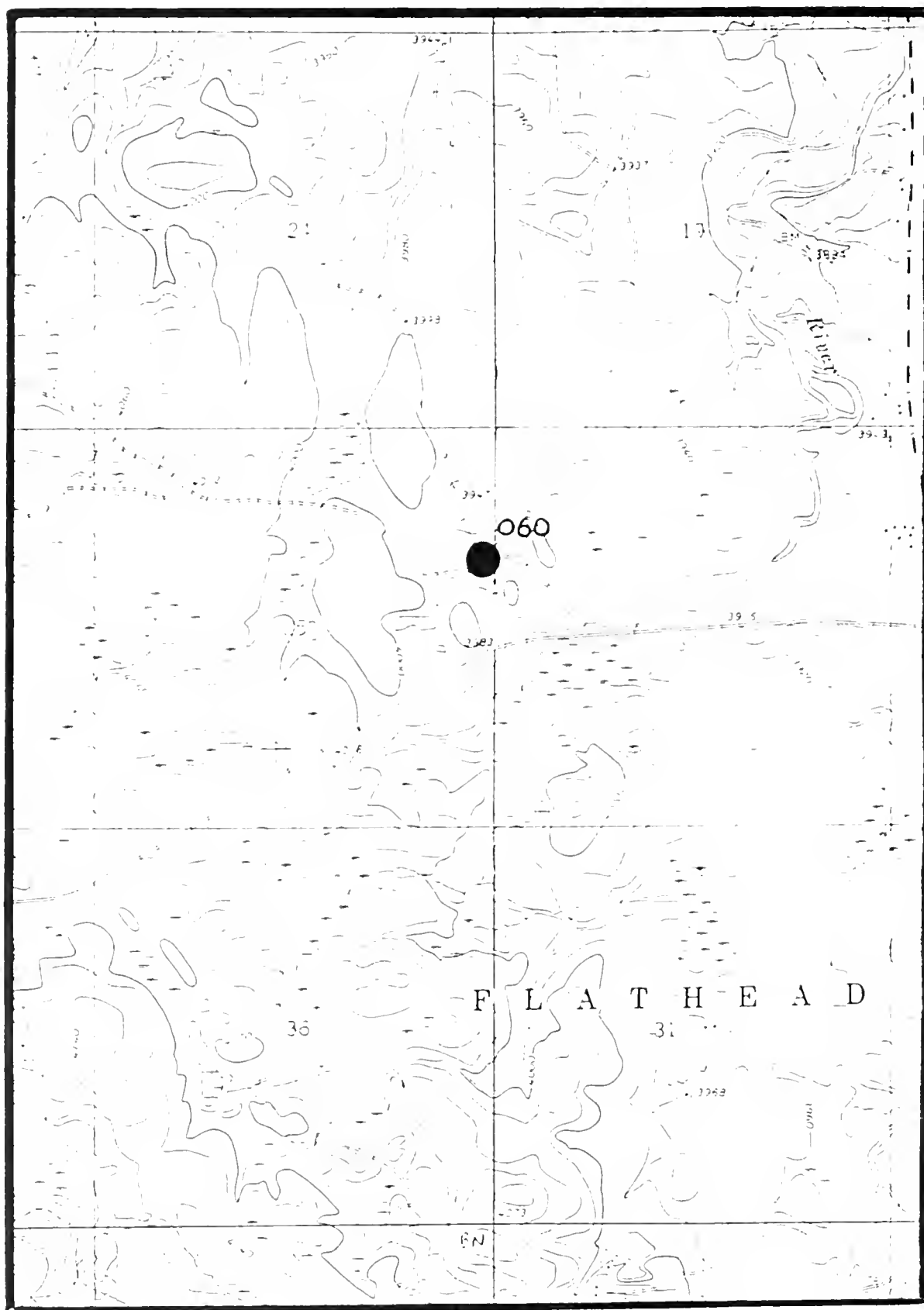
U.S.G.S. Woodward (7.5') Quadrangle

Black Canyon Road Junction (058)



U.S.G.S. Salmon Lake (7.5') Quadrangle

Lost Prairie Creek (059)



U.S.G.S. Cygnet Lake (7.5') Quadrangle

Glacier Creek Road (060)

APPENDIX B

Resurveyed Populations: Element Occurrence Records and Maps

ELEMENT OCCURRENCE RECORD
Grindelia howellii

28

Occurrence number: 006

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: VAUGHN RANCH
EO rank: D
EO rank comments: 1986: SMALL, ROADSIDE POPULATION. 1990:
CATTLE GRAZING.

County: MISSOULA

USGS quadrangle: SALMON LAKE

Township-range: 016N015W Section: 28 Precision: S
Township-range comments: SE4

Survey date:	1986-07-30	Elevation:	4100
First observation:	1966	Slope/aspect:	
Last observation:	1990-08-07	Size (acres):	0

Location:

ALONG VAUGHN CREEK RD. (LOLO N.F. RD. 4337), JUST SOUTH OF BRIDGE OVER
OWL CREEK, AT TURN-OFF TO OLD RANCH (WILBER VAUGHN RANCH).

Element occurrence data:

1986: 9 PLANTS COUNTED DURING SURVEYS. THE WOODLAND COLLECTIONS WERE
THE FIRST RECORDS FOR MONTANA. 1990: 6 PLANTS PRESENT.

General site description:

1986: DRY, ROCKY ROADSIDE, IN PINUS PONDEROSA FOREST. 1990: PLANTS
CONFINED TO ROAD EDGE; MOST CLOSE TO OR UNDER ROSA SPP.

Land owner/manager:

BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT AREA
CHAMPION INTERNATIONAL LAND

Comments:

SPECIMENS VERIFIED BY A. CRONQUIST; WOODLAND, D.W. (827, 906), 1966,
MONTU (60354, 60353).

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

ELEMENT OCCURRENCE RECORD
Grindelia howellii

29

Occurrence number: 012

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: JONES LAKE
EO rank: C
EO rank comments: SMALL POPULATION, ADJACENT TO GRAVEL
ROADS.

County: POWELL

USGS quadrangle: OVANDO MOUNTAIN

Township-range: 015N012W Section: 16 Precision: S
Township-range comments: NW4SE4

Survey date:	1986-07-25	Elevation:	4260
First observation:	1976	Slope/aspect:	
Last observation:	1990-08-09	Size (acres):	2

Location:

ALONG GRAVEL ROAD CA. 2.5 AIR MILES NORTH OF OVANDO, CA. 1.5 AIR MILES
WEST OF MARTIN PARK, 2 AIR MILES SSW OF MOLLET PARK.

Element occurrence data:

1986: 42 PLANTS COUNTED; MOSTLY NEAR ROAD, WITH MUCH OF THE
SURROUNDING, UNDISTURBED GRASSLAND NOT CONTAINING ANY INDIVIDUALS.
1990: 10 PLANTS (FLOWERING) REMAIN IN POPULATION.

General site description:

BROWN LOAM SOILS; FESTUCA SCABRELLA GRASSLAND, NEAR EDGE OF PINUS
PONDEROSA FOREST, WITH STIPA RICHARDSONII, CHRYSOPSIS VILLOSA,
KOELERIA MACRANTHA, BALSAMORHIZA SAGITTATA.

Land owner/manager:

STATE LAND - UNDESIGNATED

Comments:

VOUCHERS-SHELLY, J.S. (1260) AND G.V. KING, 1986, MONTU; WATSON, T.J.
(1357), 1976, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST AND 20-22 AUGUST.

Grindelia howellii

Occurrence number: 018

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: DICK CREEK
EO rank: CD
EO rank comments: LARGE POPULATION, OCCURRING IN DISTURBED
HABITAT.

County: POWELL

USGS quadrangle: OVANDO MOUNTAIN

Township-range: 015N012W Section: 16 Precision: S
Township-range comments: SE4SE4

Survey date: 1986-07-25 Elevation: 4310
First observation: 1986 Slope/aspect:
Last observation: 1990-08-09 Size (acres): 1

Location:

BRIDGE OVER DICK CREEK, ALONG CHAMPION INTERNATIONAL ROAD CA. 2.6 AIR
MILES NNE OF OVANDO, CA. 1 AIR MILE WEST OF MARTIN PARK. (NOTE: BRIDGE
OUT IN 1990)

Element occurrence data:

1986: CA. 150-200 PLANTS, MOSTLY IN FLOWER; SPECIES IS RESTRICTED TO
DISTURBED SOIL AREAS, AND WAS NOT FOUND IN ADJACENT UNDISTURBED
HABITAT. 1990: CA. 800 PLANTS COUNTED; ROBUST POPULATION.

General site description:

ALONG ROAD IN FILL DIRT OVER CREEK; WITH PINUS PONDEROSA, PSEUDOTSUGA
MENZIESII, VERBASCUM THAPSUS, CARDUUS NUTANS, LINARIA VULGARIS,
CHRYSOPSIS VILLOSA.

Land owner/manager:

STATE LAND - UNDESIGNATED

Comments:

VOUCHER-SHELLY, J.S. (1261) AND G.V. KING, 1986, MONTU. BRIDGE OUT IN
1990 APPEARS TO HAVE HELPED POPULATION.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST AND 20-22 AUGUST.

ELEMENT OCCURRENCE RECORD

31

Grindelia howellii

Occurrence number: 019

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: OVANDO-CHAMPION

EO rank: CD

EO rank comments: 1986: LARGE ROADSIDE POPULATION. 1990:
EVIDENCE OF CRUSHING BY VEHICLES AND
CROPPING BY GRAZING.

County: POWELL

USGS quadrangle: OVANDO MOUNTAIN

Township-range: 015N012W Section: 22 Precision: S

Township-range comments: N2N2

Survey date: 1986-07-25	Elevation: 4380
First observation: 1986	Slope/aspect:
Last observation: 1990-08-09	Size (acres): 2

Location:

ALONG CHAMPION INTERNATIONAL LOGGING RD., CA. 2 AIR MILES NORTHEAST OF
OVANDO, 0.5 AIR MILES SOUTHWEST OF MARTIN PARK.

Element occurrence data:

1986: CA. 250-300 PLANTS, IN FLOWER AND EARLY FRUIT; SPECIES OCCURS AS
A ROADSIDE RUDERAL, AND PLANTS WERE NOT FOUND AWAY FROM THE ROAD.

1990: CA. 1600 PLANTS.

General site description:

IN AND ALONG ROAD, GRAVELLY LOAM SOIL; WITH PINUS PONDEROSA/
PSEUDOTSUGA MENZIESII (SECOND GROWTH), POTENTILLA GRACILIS, VERBASCUM
THAPSUS, PHLEUM PRATENSE, CENTAUREA MACULOSA.

Land owner/manager:

CHAMPION INTERNATIONAL LAND

Comments:

VOUCHER-SHELLY, J.S. (1262) AND G.V. KING, 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

Grindelia howellii

Occurrence number: 020

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: MOLLET PARK
EO rank: CD
EO rank comments: LARGE POPULATION, THRIVING IN A
DISTURBED SITE.

County: POWELL

USGS quadrangle: OVANDO MOUNTAIN

Township-range: 015N012W Section: 03 Precision: S
Township-range comments: S2NW4,N2SW4

Survey date:	1986-07-26	Elevation:	4585
First observation:	1986	Slope/aspect:	
Last observation:	1990-08-09	Size (acres):	19

Location:

MOLLET PARK, CA. 4.5 AIR MILES NNE OF OVANDO, CA. 3 AIR MILES WSW OF
OVANDO MOUNTAIN.

Element occurrence data:

1986: CA. 500-600 PLANTS, IN FLOWER; SPECIES DOES NOT OCCUR IN THE
UNDISTURBED SOUTHERN PORTION OF THE NATIVE GRASSLAND IN MOLLET PARK,
BUT IT IS ABUNDANT ALONG THE BOTTOMS OF THE FURROWS IN THE DISTURBED
PINE PLANTATION. 1990: POPULATION SUBSTANTIALLY DECLINED; 272 PLANTS
COUNTED. POPULATON CONFINED TO ROADSIDE AND JUNCTION. NONE SEEN IN
FURROWS.

General site description:

GRAVELLY LOAM SOILS, IN FURROWS OF A PLANTED PINUS PONDEROSA
PLANTATION (1986); WITH FESTUCA SCABRELLA, CENTAUREA MACULOSA, PHLEUM
PRATENSE, VERBASCUM THAPSUS, POTENTILLA GRACILIS.

Land owner/manager:

BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT AREA
CHAMPION INTERNATIONAL LAND

Comments:

VOUCHER-SHELLY, J.S. (1263) AND G.V. KING, 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

ELEMENT OCCURRENCE RECORD
Grindelia howellii

33

Occurrence number: 021

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: MOLLET PARK SOUTH
EO rank: D

EO rank comments: SMALL POPULATION IN A DISTURBED SITE.

County: POWELL

USGS quadrangle: OVANDO MOUNTAIN

Township-range: 015N012W Section: 10 Precision: S
Township-range comments: N2NE4

Survey date: 1986-07-26	Elevation: 4570
First observation: 1986	Slope/aspect:
Last observation: 1990-08-09	Size (acres): 3

Location:

ALONG LOGGING ROADS AT THE SOUTHEAST END OF MOLLET PARK, CA. 4 AIR
MILES NNE OF OVANDO, CA. 2.7 AIR MILES WSW OF OVANDO MOUNTAIN.

Element occurrence data:

1986: TWO SUBPOPULATIONS, CA. 60-80 PLANTS (WEST SITE) AND 10 PLANTS
(EAST SITE), FLOWER AND EARLY FRUIT; AREA IMPACTED BY LOGGING,
GRAZING, AND ROAD CONSTRUCTION, BUT SPECIES OFTEN RESPONDS WELL TO
DISTURBANCE. 1990: 125 PLANTS COUNTED.

General site description:

GRAVELLY LOAM SOIL; GRAZED, DISTURBED AREA IN SECOND GROWTH PINUS
PONDEROSA PARKLAND; WITH FESTUCA SCABRELLA, PHLEUM PRATENSE, CARDUUS
NUTANS, LINARIA VULGARIS.

Land owner/manager:

CHAMPION INTERNATIONAL LAND

Comments:

VOUCHER-SHELLY, J.S. (1264) AND G.V. KING, 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

ELEMENT OCCURRENCE RECORD
Grindelia howellii

34

Occurrence number: 023

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: DONEY LAKE
EO rank: D
EO rank comments: 1986: SMALL ROADSIDE POPULATION. 1990:
VERY DENSE KNAPWEED.

County: POWELL

USGS quadrangle: OVANDO MOUNTAIN

Township-range: 015N011W Section: 20 Precision: S
Township-range comments: NW4NW4

Survey date:	1986-07-26	Elevation:	4460
First observation:	1986	Slope/aspect:	
Last observation:	1990-08-09	Size (acres):	2

Location:

ALONG GRAVEL ROAD ON NORTH SIDE OF DONEY LAKE, CA. 1 AIR MILE
NORTHWEST OF NORTH FORK OF THE BLACKFOOT RIVER, CA. 5 AIR MILES ENE OF
OVANDO.

Element occurrence data:

1986: 60 PLANTS, IN FLOWER; PLANTS OCCUR ALONG ROAD AND ON BANK SOUTH
OF ROAD; NOT OBSERVED AWAY FROM ROADSIDE. 1990: 86 PLANTS COUNTED.

General site description:

GRAVELLY LOAM SOIL; PINUS PONDEROSA/PSEUDOTSUGA MENZIESII, WITH
CENTAUREA MACULOSA, PHLEUM PRATENSE, ACHILLEA MILLEFOLIUM, ASTER SPP.,
MELILOTUS SPP.

Land owner/manager:

CHAMPION INTERNATIONAL LAND

Comments:

VOUCHER-SHELLY, J.S. (1266) AND G.V. KING, 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

ELEMENT OCCURRENCE RECORD
Grindelia howellii

35

Occurrence number: 024

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: VAUGHN CREEK
EO rank: D
EO rank comments: SMALL POPULATION, DISTURBED SITE.

County: MISSOULA

USGS quadrangle: BELMONT POINT

Township-range: 015N015W Section: 05 Precision: S
Township-range comments: SE4

Survey date: 1986-07-30 Elevation: 4600
First observation: 1986 Slope/aspect:
Last observation: 1990-08-07 Size (acres): 1

Location:

ALONG LOST PRAIRIE-PLACID ROAD, 1.65 AIR MILES SOUTH OF PLACID LAKE,
CA. 0.2 AIR MILES SOUTHEAST OF VAUGHN CREEK.

Element occurrence data:

1986: 54 PLANTS, FLOWERS AND EARLY FRUIT; PLANTS OCCUR ON ROADSIDE AND
ON THE EDGE OF A CLEARCUT. 1990: POPULATION NOT RELOCATED; 1 FLOWERING
PLANT (NO BASAL LEAVES) FOUND CA. 0.12 MILE WEST OF SITE.

General site description:

CLAY LOAM SOILS; LARIX OCCIDENTALIS/PINUS CONTORTA/ PSEUDOTSUGA
MENZIESII, WITH CIRSIUM VULGARE, ACHILLEA MILLEFOLIUM, CAMPANULA
ROTUNDIFOLIA, RUBUS PARVIFLORUS.

Land owner/manager:

CHAMPION INTERNATIONAL LAND
LOLO NATIONAL FOREST, SEELEY LAKE RANGER DISTRICT

Comments:

VOUCHER-SHELLY, J.S. (1277) AND G.V. KING, 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

ELEMENT OCCURRENCE RECORD
Grindelia howellii

36

Occurrence number: 025

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: PLACID-LOST PRAIRIE ROAD
EO rank: D
EO rank comments: SMALL POPULATION, DISTURBED SITE.

County: MISSOULA

USGS quadrangle: SALMON LAKE

Township-range: 015N015W Section: 04 Precision: S
Township-range comments: NE4

Survey date:	1986-07-30	Elevation:	4700
First observation:	1986	Slope/aspect:	
Last observation:	1990	Size (acres):	2

Location:

ALONG LOST PRAIRIE-PLACID ROAD, 2 AIR MILES WNW OF LOST PRAIRIE, 1.5
AIR MILES SOUTH OF OWL CREEK.

Element occurrence data:

1986: 45 PLANTS, IN FLOWER; PLANTS OCCUR RIGHT ALONG THE ROAD ONLY.
1990: A POPULATION LOCATED CA. 0.5 MILE EAST; IN BED OF OLD LOGGING
ROAD, 248 GENETS IN FLOWER AND FRUIT. THIS MAY OR MAY NOT BE AN
EXTENSION OR INCREASE IN SIZE OF POPULATION.

General site description:

GRAVELLY LOAM SOILS; LARIX OCCIDENTALIS/PINUS CONTORTA/ PSEUDOTSUGA
MENZIESII, WITH ACHILLEA MILLEFOLIUM, CIRSIUM VULGARE, POTENTILLA
GRACILIS, CENTAUREA MACULOSA.

Land owner/manager:

CHAMPION INTERNATIONAL LAND

Comments:

VOUCHER-SHELLY, J.S. (1278) AND G.V. KING, 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

Grindelia howellii

Occurrence number: 027

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: LOST HORSE CREEK
EO rank: C
EO rank comments: MODERATE-SIZED POPULATION; SERIOUS
KNAPWEED INVASION.

County: MISSOULA

USGS quadrangle: SALMON LAKE

Township-range: 015N014W Section: 19 Precision: S
Township-range comments: SW4SE4

Survey date:	1986-07-31	Elevation:	4000
First observation:	1986	Slope/aspect:	
Last observation:	1990-08-07	Size (acres):	3

Location:

ALONG LOST HORSE CREEK, 1.0 AIR MILES WNW OF ITS CONFLUENCE WITH
CLEARWATER RIVER, CA. 3.3 AIR MILES NORTHWEST OF CLEARWATER JUNCTION.

Element occurrence data:

1986: CA. 200-250 PLANTS, IN FLOWER AND EARLY FRUIT; WEED COMPETITION
IS VERY SERIOUS (SPOTTED KNAPWEED), AND PLANTS ARE SMALLER AND APPEAR
TO BE MORE FEEBLE, POSSIBLY AS A RESULT OF THIS COMPETITION. 1990: 11
PLANTS, WIDELY SEPARATED.

General site description:

GRAVELLY LOAM SOILS; PINUS PONDEROSA/FESTUCA SCABRELLA, WITH CENTAUREA
MACULOSA, PHLEUM PRATENSE, HYPERICUM PERFORATUM, POTENTILLA GRACILIS.

Land owner/manager:

BLACKLEAF WILDLIFE MANAGEMENT AREA
STATE LAND - UNDESIGNATED

Comments:

VOUCHER-SHELLY, J.S. (1280) AND G.V. KING, 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

ELEMENT OCCURRENCE RECORD
Grindelia howellii

38

Occurrence number: 028

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: LOST HORSE ROAD
EO rank: D
EO rank comments: 1986: SMALL, ROADSIDE POPULATION; GRAZED
AREA. 1990: AREA HIGHLY DISTURBED.

County: MISSOULA

USGS quadrangle: SALMON LAKE

Township-range: 015N015W Section: 24 Precision: S
Township-range comments: S2SE4

Survey date:	1986-07-31	Elevation:	4160
First observation:	1986	Slope/aspect:	
Last observation:	1990-08-07	Size (acres):	2

Location:

ALONG CHAMPION INTERNATIONAL LOGGING ROAD, 0.34 AIR MILES SOUTH OF
LOST HORSE CREEK, CA. 2 AIR MILES WEST OF CLEARWATER RIVER.

Element occurrence data:

1986: 45 MATURE PLANTS COUNTED, ROSETTES NOT COUNTED; ROAD BISECTS
SITE, AND AREA IS GRAZED. 1990: 6 PLANTS ON BOTH SIDES OF ROAD; NO
BASAL LEAVES.

General site description:

LOAM SOILS; PINUS PONDEROSA/PSEUDOTSUGA MENZIESII/STIPA RICHARDSONII,
WITH CARDUUS NUTANS, PHLEUM PRATENSE, GERANIUM VISCOSISSIMUM,
POTENTILLA GRACILIS, VERBASCUM THAPSUS.

Land owner/manager:

LOLO NATIONAL FOREST, SEELEY LAKE RANGER DISTRICT

Comments:

VOUCHER-SHELLY, J.S. (1281) AND G.V. KING, 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

ELEMENT OCCURRENCE RECORD
Grindelia howellii

39

Occurrence number: 029

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: LOST HORSE SPUR ROAD
EO rank: BC
EO rank comments: 1986: MODERATE-SIZED POPULATION,
PARTIALLY UNDISTURBED. 1990: HIGHLY
DISTURBED.

County: MISSOULA

USGS quadrangle: SALMON LAKE

Township-range: 015N015W Section: 22 Precision: S
Township-range comments: E2NE4,23W2NW4

Survey date: 1986-07-31 Elevation: 4660
First observation: 1986 Slope/aspect:
Last observation: 1990-08-07 Size (acres): 2

Location:

ALONG CHAMPION INTERNATIONAL LOGGING ROAD, 0.8 AIR MILES SOUTH OF LOST
HORSE CREEK, 3.2 AIR MILES WEST OF ELBOW LAKE/ CLEARWATER RIVER.

Element occurrence data:

1986: 175 PLANTS COUNTED, BUT PROBABLY AT LEAST 200 PLANTS;
INDIVIDUALS OCCUR LARGELY IN AND ALONG OLD LOGGING ROAD, BUT CA. 6
PLANTS OCCUR IN ADJACENT, LESS DISTURBED MEADOW OPENING. 1990: 536
PLANTS COUNTED.

General site description:

GRAVELLY LOAM SOILS; PINUS PONDEROSA/PSEUDOTSUGA MENZIESII/ LARIX
OCCIDENTALIS/PINUS CONTORTA, WITH POTENTILLA GRACILIS, VERBASCUM
THAPSUS, CENTAUREA MACULOSA, ASTER. 1990: ALSO, FILAGO ARVENSIS,
MADIA.

Land owner/manager:

CHAMPION INTERNATIONAL LAND
LOLO NATIONAL FOREST, SEELEY LAKE RANGER DISTRICT

Comments:

VOUCHER-SHELLY, J.S. (1282) AND G.V. KING, 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

Grindelia howellii

Occurrence number: 030

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: LOST HORSE-BLANCHARD ROAD
EO rank: D
EO rank comments: 1986: SMALL, ROADSIDE POPULATION. 1990:
DENSE CENTAUREA MACULOSA.

County: MISSOULA

USGS quadrangle: SALMON LAKE

Township-range: 015N014W Section: 30 Precision: S
Township-range comments: NW4

Survey date: 1986-07-31 Elevation: 4120
First observation: 1986 Slope/aspect:
Last observation: 1990-08-07 Size (acres): 5

Location:

ALONG CHAMPION INTERNATIONAL LOGGING ROAD BETWEEN LOST HORSE CREEK AND
BLANCHARD CREEK, 0.8-1.0 AIR MILES NORTH OF NORTH FORK BLANCHARD
CREEK; 1.25 MILES WEST OF CLEARWATER ROAD.

Element occurrence data:

1986: 85 PLANTS COUNTED, IN FLOWER; PLANTS OCCUR MOSTLY ALONG ROAD
MARGIN, WITH A FEW SCATTERED 20-30 FEET AWAY FROM THE ROAD; PLANTS
ALSO SCATTERED ALONG ROAD NEAR LAKE TO THE SOUTH. 1990: 60 PLANTS,
SOME GROWING IN CENTER OF ROAD.

General site description:

GRAVELLY LOAM SOILS; PINUS PONDEROSA/LARIX OCCIDENTALIS/ PSEUDOTSUGA
MENZIESII, WITH POPULUS TREMULOIDES, CARDUUS NUTANS, PHLEUM PRATENSE,
CENTAUREA MACULOSA.

Land owner/manager:

CHAMPION INTERNATIONAL LAND

Comments:

VOUCHER-SHELLY, J.S. (1283) AND G.V. KING, 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

ELEMENT OCCURRENCE RECORD
Grindelia howellii

41

Occurrence number: 033

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: DICK CREEK EAST
EO rank: D
EO rank comments: SMALL POPULATION, DISTURBED HABITAT.

County: POWELL

USGS quadrangle: OVANDO MOUNTAIN

Township-range: 015N012W Section: 15 Precision: S
Township-range comments: N2SW4

Survey date:	1986-08-03	Elevation:	4360
First observation:	1986	Slope/aspect:	
Last observation:	1990-08-09	Size (acres):	1

Location:

ALONG CHAMPION INTERNATIONAL LOGGING ROAD, CA. 2.5 AIR MILES NNE OF
OVANDO, CA. 0.75 MILES WEST OF MARTIN PARK; SIDE ROAD NOT SHOWN ON
TOPO MAP.

Element occurrence data:

1986: 38 PLANTS COUNTED; PLANTS OCCUR ALONG LOGGING ROAD AND ADJACENT
TO LOGGING SLASH PILES. 1990: 84 PLANTS COUNTED. SLASH PILES GONE;
POPULATION ON ROADSIDES AND IN ROAD.

General site description:

GRAVELLY LOAM SOILS; PINUS PONDEROSA/FESTUCA SCABRELLA, WITH
POTENTILLA GRACILIS, VERBASCUM THAPSUS, MADIA GLOMERATA, PERIDERIDIA
GAIRDNERI, ACHILLEA MILLEFOLIUM.

Land owner/manager:

CHAMPION INTERNATIONAL LAND

Comments:

VOUCHER-SHELLY, J.S. (1288), 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

Grindelia howellii

Occurrence number: 034

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: PEARSON CREEK
EO rank: B
EO rank comments: GOOD POPULATION, ESP. NEAR MEADOW IN
LESS DISTURBED HABITAT.

County: POWELL

USGS quadrangle: CHAMBERLAIN MOUNTAIN

Township-range: 014N013W Section: 02 Precision: S
Township-range comments: S2SE4,SE4SW4

Survey date: 1986-08-03 Elevation: 4270
First observation: 1986 Slope/aspect:
Last observation: 1990-08-08 Size (acres): 25

Location:

SOUTH OF THE BLACKFOOT RIVER, 0.3-0.65 AIR MILES NORTHEAST OF PEARSON CREEK, CA. 2.5 AIR MILES SOUTHEAST OF SCOTTY BROWN BRIDGE.

Element occurrence data:

1986: 228 PLANTS COUNTED, 3 SUBPOPULATIONS (EST. 275-300 TOTAL INDIVIDUALS); BEST GROUP (157 PLANTS) IS ADJACENT TO A MEADOW IN SE4SE4, ALONG AN UNUSED JEEP TRAIL WHERE CENTAUREA MACULOSA IS SPARSE.
1990: 58 PLANTS LOCATED CA. 30 YARDS WEST OF PEARSON CREEK ROAD JUNCTION.

General site description:

1986: BROWN LOAM SOILS; ROADSIDES AND OPENINGS, PINUS PONDEROSA/PSEUDOTSUGA MENZIESII/LARIX OCCIDENTALIS/FESTUCA SCABRELLA, WITH ARTEMISIA TRIDENTATA, POTENTILLA GRACILIS. 1990: CENTAUREA MACULOSA THICK.

Land owner/manager:

STATE LAND - UNDESIGNATED
CHAMPION INTERNATIONAL LAND

Comments:

VOUCHER-SHELLY, J.S. (1289), 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

ELEMENT OCCURRENCE RECORD
Grindelia howellii

43

Occurrence number: 035

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: BLACKFOOT ROADSIDE
EO rank: D
EO rank comments: WEEDY, ROADSIDE POPULATION.

County: POWELL

USGS quadrangle: CHAMBERLAIN MOUNTAIN

Township-range: 014N012W Section: 17 Precision: S
Township-range comments: NW4SE4

Survey date:	1986-08-03	Elevation:	4200
First observation:	1986	Slope/aspect:	
Last observation:	1990-08-08	Size (acres):	1

Location:

ALONG LOGGING ROAD ON SLOPE ABOVE (SOUTHWEST OF) THE BLACKFOOT RIVER,
1.27 AIR MILES SSW OF ITS CONFLUENCE WITH NORTH FORK OF THE BLACKFOOT
RIVER.

Element occurrence data:

1986: 80 PLANTS COUNTED, IN FLOWER; PLANTS HAVE RATHER AGGRESSIVELY
INVADED A PULL-OUT ALONG THE ROAD; G. SQUARROSA IS ALSO PRESENT, AND
SOME PLANTS ARE INTERMEDIATE BETWEEN THE 2 SPECIES. 1990: ROAD
CONDEMNED AND CLOSED, POPULATION NOT RELOCATED; SUSPECTED EXTIRPATED.

General site description:

ROADSIDE, GRAVELLY LOAM SOILS; PSEUDOTSUGA MENZIESII/LARIX
OCCIDENTALIS/PINUS CONTORTA/PINUS PONDEROSA, WITH CENTAUREA MACULOSA,
ACHILLEA MILLEFOLIUM, CARDUUS NUTANS, CIRSIUM.

Land owner/manager:

CHAMPION INTERNATIONAL LAND

Comments:

VOUCHER-SHELLY, J.S. (1292), 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

Grindelia howellii

Occurrence number: 036

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: BLACKFOOT ROADSIDE II
EO rank: D
EO rank comments: SMALL ROADSIDE POPULATION, DISTURBED
AREA.

County: POWELL

USGS quadrangle: CHAMBERLAIN MOUNTAIN

Township-range: 014N012W Section: 07 Precision: S
Township-range comments: SW4NW4

Survey date: 1986-08-03	Elevation: 4260
First observation: 1986	Slope/aspect:
Last observation: 1990-08-08	Size (acres): 1

Location:

0.63 AIR MILES SOUTH OF THE BLACKFOOT RIVER, 2.08 AIR MILES WEST OF
ITS CONFLUENCE WITH NORTH FORK BLACKFOOT RIVER, CA. 4 AIR MILES
SOUTHEAST OF THE SCOTTY BROWN BRIDGE.

Element occurrence data:

1986: 15 PLANTS COUNTED, LATE FLOWER AND FRUIT; PLANTS OCCUR AS A
WEEDY, ROADSIDE POPULATION, AND WERE NOT FOUND AWAY FROM THE ROAD.
1990: NO PLANTS PRESENT; ROAD RECENTLY GRADED AND NEW DITCHES. 130
PLANTS COUNTED CA. 0.1 MILE SOUTH, EXTENDING CA. 40 YARDS ALONG ROAD;
POPULATION PARTIALLY CRUSHED OR BURIED BY GRADER.

General site description:

GRAVELLY LOAM SOIL; LARIX OCCIDENTALIS/PSEUDOTSUGA MENZIESII, WITH
CARDUUS NUTANS, VERBASCUM THAPSUS, TARAXACUM OFFICINALE, CENTAUREA
MACULOSA.

Land owner/manager:

CHAMPION INTERNATIONAL LAND

Comments:

SIGHT RECORD, NO VOUCHER SPECIMEN COLLECTED.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

ELEMENT OCCURRENCE RECORD
Grindelia howellii

45

Occurrence number: 038

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: UPSATA LAKE
EO rank: B
EO rank comments: LARGER POPULATION, MOSTLY OCCURRING IN
NATIVE HABITAT.

County: POWELL

USGS quadrangle: OVANDO

Township-range: 015N013W Section: 10 Precision: S
Township-range comments: SE4NW4, SW4NE4

Survey date: 1986-08-04 Elevation: 4120
First observation: 1986 Slope/aspect:
Last observation: 1990-08-08 Size (acres): 8

Location:

CA. 0.1 AIR MILES SOUTHWEST OF SOUTHWEST END OF UPSATA LAKE ("OPSATA"
ON USGS MAP), ALONG GRAVEL ROAD NORTH AND EAST OF BLACKFOOT-CLEARWATER
WILDLIFE MANAGEMENT AREA HEADQUARTERS.

Element occurrence data:

1986: CA. 250-300 PLANTS, IN FLOWER AND EARLY FRUIT; PLANTS FOUND
ALONG FENCE LINES AND ROAD, AND IN LIGHTLY GRAZED PASTURE. 1990: CA.
650 PLANTS COUNTED; SOME HEADS IN FRUIT, PLANTS MOSTLY SMALL, MANY
LOOKED GRAZED.

General site description:

LOAM SOILS; FESTUCA SCABRELLA GRASSLAND, WITH PHLEUM PRATENSE,
CENTAUREA MACULOSA, BROMUS INERMIS, HORDEUM JUBATUM, ACHILLEA
MILLEFOLIUM, CIRSIUM ARVENSE.

Land owner/manager:

PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)
UNIVERSITY OF MONTANA LAND (UNDESIGNATED)

Comments:

VOUCHER-SHELLY, J.S. (1294), 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

Grindelia howellii

Occurrence number: 039

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: UPSATA-WOODWORTH JUNCTION
EO rank: B
EO rank comments: 1986: LARGE POPULATIONS, IN MODERATELY
GRAZED NATIVE RANGE. 1990: HEAVILY
GRAZED.

County: POWELL

USGS quadrangle: WOODWORTH
OVANDO

Township-range: 015N013W Section: 09 Precision: S
Township-range comments: CENTER, NE4

Survey date: 1986-08-04 Elevation: 4120
First observation: 1986 Slope/aspect:
Last observation: 1990-08-08 Size (acres): 7

Location:

ALONG GRAVEL ROAD TO UPSATA LAKE, 2.7-3.2 AIR MILES NORTH OF STATE
HWY. 200, CA. 1.6-2.1 ROAD MILES NORTH AND EAST OF JUNCTION WITH
BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT AREA HEADQUARTERS ROAD.

Element occurrence data:

1986: CA. 350-400 PLANTS OBSERVED, IN 3 SUBPOPULATIONS; FLOWERS AND
EARLY FRUIT; PLANTS OCCUR ALONG FENCES AND IN NATIVE RANGE; SOUTHERN
SUBPOPULATION IS LARGEST (300- 350 PLANTS), OCCURRING BETWEEN LOW
HILLS. 1990: 172 PLANTS IN SOUTHERN SUBPOPULATION.

General site description:

GRAVELLY LOAM SOILS, ALONG INTERMITTENT DRAINAGES AND ROADSIDE;
FESTUCA SCABRELLA GRASSLAND, WITH CENTAUREA MACULOSA, VERBASCUM
THAPSUS, POTENTILLA GRACILIS, GERANIUM.

Land owner/manager:

PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:

VOUCHER-SHELLY, J.S. (1295), 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

Grindelia howellii

Occurrence number: 040

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: COTTONWOOD CREEK

EO rank: D

EO rank comments: 1986: LARGE POPULATION, EXCELLENT
HABITAT, BEST OCCURRENCE IN MONTANA.
1990: POPULATION VIRTUALLY DESTROYED.

County: POWELL

USGS quadrangle: WOODWORTH

Township-range: 015N013W Section: 17 Precision: S

Township-range comments: E2NE4, NE4SE4, 16W2SW4

Survey date:	1986-08-04	Elevation:	4040
First observation:	1986	Slope/aspect:	
Last observation:	1990-08-08	Size (acres):	77

Location:

ALONG GRAVEL ROAD TO UPSATA LAKE, 0.1-0.6 AIR MILES EAST OF COTTONWOOD CREEK, CENTERED CA. 0.75 AIR MILES NORTHEAST OF BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT AREA HEADQUARTERS.

Element occurrence data:

1986: CA. 1200-1400 PLANTS IN WILDLIFE MANAGEMENT AREA, CA. 400-500 PLANTS ON PRIVATE LAND EAST OF ROAD; THE MOST PLANTS ARE IN THE NORTHEAST CORNER OF S17, ON THE WILDLIFE MANAGEMENT AREA, WHERE MICROSITES ARE PROBABLY SOMEWHAT MOISTER. 1990: 4 PLANTS COUNTED; POPULATION VIRTUALLY DESTROYED BY HERBICIDE APPLICATION.

General site description:

BROWN GRAVELLY LOAM; NATIVE FESTUCA SCABRELLA GRASSLAND, WITH AGROPYRON SPICATUM, CHRYSOPSIS VILLOSA, POTENTILLA GRACILIS, ANTENNARIA MICROPHYLLA, SOLIDAGO, LUPINUS, KOELERIA.

Land owner/manager:

PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)
BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT AREA
STATE LAND - UNDESIGNATED

Comments:

VOUCHER-SHELLY, J.S. (1296), 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26 JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

Grindelia howellii

Occurrence number: 041

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: BLACKFOOT BACKROADS
EO rank: C
EO rank comments: SMALLER POPULATION, HABITAT LIGHTLY
DISTURBED BY LOGGING.

County: POWELL

USGS quadrangle: WOODWORTH

Township-range: 015N013W Section: 07 Precision: S
Township-range comments: NW4, CENTER

Survey date:	1986-08-04	Elevation:	4120
First observation:	1986	Slope/aspect:	
Last observation:	1990-08-08	Size (acres):	33

Location:

ALONG AND NEAR OLD LOGGING TRAILS, CA. 1.5-2.0 AIR MILES NORTHWEST OF
BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT AREA HEADQUARTERS, CA. 2.5
MILES SOUTH OF WOODWORTH.

Element occurrence data:

1986: 68 PLANTS COUNTED, IN FLOWER; PLANTS OCCUR ALONG OLD LOGGING
TRAILS, IN GRASSY OPENINGS, AND IN A SHADED THICKET. 1990: 42 PLANTS,
ROBUST, BUT FEW ROSETTES.

General site description:

1986: GRAVELLY LOAM, LOAM SOILS; PINUS PONDEROSA/LARIX
OCCIDENTALIS/PSEUDOTSUGA MENZIESII, POPULUS TREMULOIDES, CENTAUREA
MACULOSA, CIRSIUM ARVENSE, FESTUCA SCABRELLA. 1990: LINARIS VULGARIS
NOTED.

Land owner/manager:

BLACKFOOT-CLEARWATER WILDLIFE MANAGEMENT AREA
CHAMPION INTERNATIONAL LAND
STATE LAND - UNDESIGNATED

Comments:

VOUCHER-SHELLY, J.S. (1297), 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

ELEMENT OCCURRENCE RECORD
Grindelia howellii

49

Occurrence number: 043

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: MONTURE CREEK ACCESS
EO rank: B
EO rank comments: 1986: GOOD POPULATIONS, OCCURRING IN
LARGELY UNDISTURBED AREAS. 1990: AREA
GRAZED.

County: POWELL

USGS quadrangle: OVANDO

Township-range: 015N013W Section: 22 Precision: S
Township-range comments: E2SE4

Survey date:	1986-08-05	Elevation:	4020
First observation:	1986	Slope/aspect:	
Last observation:	1990-08-08	Size (acres):	15

Location:

MONTURE CREEK FISHING ACCESS SITE, SOUTH SIDE OF STATE HWY. 200 CA.
4.5 MILES WEST OF OVANDO.

Element occurrence data:

1986: CA. 225-250 PLANTS ON RIDGE, CA. 200 ON RIVER TERRACES ON EACH
SIDE OF MONTURE CREEK; IN FLOWER AND FRUIT. 1990: NO PLANTS RELOCATED
ON RIDGE; 5 FLOWERING PLANTS FOUND NEAR CREEK, 2 PLANTS ALONG GRAVEL
BAR.

General site description:

1986: LOAM SOILS; ARTEMISIA TRIDENTATA/FESTUCA SCABRELLA/PINUS
PONDEROSA, WITH ACHILLEA MILLEFOLIUM, CENTAUREA MACULOSA, GERANIUM
VISCOSISSIMUM, SOLIDAGO, CHRYSOPSIS. 1990: ADDITIONAL SPECIES NOTED
INCLUDE PHLEUM PRATENSE, MELILOTUS ALBA, POTENTILLA RECTA, LINARIA
VULGARIS.

Land owner/manager:

MONTURE FISHING ACCESS SITE

Comments:

VOUCHER-SHELLY, J.S. (1301), 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

Grindelia howellii

Occurrence number: 044

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: CLEARWATER BACKROAD
EO rank: BC
EO rank comments: 1986: MODERATE-SIZED POPULATION, HABITAT
CREATED BY DISTURBANCE. 1990: SOME
PLANTS CRUSHED FROM VEHICLE USE.

County: MISSOULA

USGS quadrangle: SALMON LAKE

Township-range: 015N014W Section: 30 Precision: S
Township-range comments: N2NE4

Survey date:	1986-08-05	Elevation:	4020
First observation:	1986	Slope/aspect:	
Last observation:	1990-08-07	Size (acres):	5

Location:

CA. 0.8 AIR MILES WEST OF CLEARWATER RIVER, CA. 0.25 AIR MILES WEST OF
LOLO N.F. ROAD 4336 ON OLD LOGGING TRAIL, CA. 3 MILES NNW OF STATE
HWY. 200.

Element occurrence data:

1986: EST. 150-160 PLANTS; 108 FLOWERING STEMS COUNTED, CA. 40-50
ROSETTES; FLOWERS AND EARLY FRUIT; PLANTS FOUND ONLY IN AND ALONG AN
OLD, LITTLE USED LOGGING TRAIL, IN SMALL CLEARINGS IN THE WOODS. 1990:
CA. 400 PLANTS; ROBUST, SPARSELY DISTRIBUTED.

General site description:

GRAVELLY LOAM SOILS; PINUS PONDEROSA/PINUS CONTORTA/ PSEUDOTSUGA
MENZIESII/LARIX OCCIDENTALIS, WITH ACHILLEA MILLEFOLIUM, POTENTILLA
GRACILIS, CIRSIUM SPP., CENTAUREA MACULOSA.

Land owner/manager:

STATE LAND - UNDESIGNATED
CLEARWATER STATE FOREST

Comments:

VOUCHER-SHELLY, J.S. (1302), 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

ELEMENT OCCURRENCE RECORD
Grindelia howellii

51

Occurrence number: 046

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: LOWER COTTONWOOD ROAD
EO rank: D
EO rank comments: SMALL POPULATION, HEAVILY-DISTURBED
HABITAT.

County: MISSOULA

USGS quadrangle: MORRELL MOUNTAIN

Township-range: 016N014W Section: 13 Precision: S
Township-range comments: NE4NW4

Survey date:	1986-08-21	Elevation:	4611
First observation:	1986	Slope/aspect:	
Last observation:	1990-08-08	Size (acres):	1

Location:

NEAR COTTONWOOD CREEK, AT JUNCTION OF LOLO N.F. ROAD 477 AND ROAD
SOUTH TO COZY CORNERS (LOWER COTTONWOOD ROAD), CA. 7.5 AIR MILES ESE
OF SEELEY LAKE (TOWN).

Element occurrence data:

1986: 27 PLANTS COUNTED; SMALL POPULATION NEAR ROAD JUNCTION. 1990: 21
PLANTS, VERY SPARSE, COMPETITIVE VEGETATION.

General site description:

ROADSIDE; SURROUNDING FOREST OF LARIX OCCIDENTALIS/PINUS
CONTORTA/PSEUDOTSUGA MENZIESII/PICEA ENGELMANNII, WITH VERBASCUM
THAPSUS, ACHILLEA MILLEFOLIUM, CIRSIUM, PHLEUM PRATENSE. ADDITIONAL
SPECIES, 1990: CENTAUREA MACULOSA, CHRYSANTHEMUM LEUCANTHEMUM,
TRIFOLIUM AGRARIUM.

Land owner/manager:

LOLO NATIONAL FOREST, SEELEY LAKE RANGER DISTRICT

Comments:

SIGHT RECORD, NO VOUCHER SPECIMEN COLLECTED.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

ELEMENT OCCURRENCE RECORD
Grindelia howellii

52

Occurrence number: 047

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: COZY CORNERS
EO rank: AB
EO rank comments: LARGEST POPULATION IN MONTANA,
STATE-OWNED LAND.

County: MISSOULA

USGS quadrangle: WOODWORTH

Township-range: 016N014W Section: 26 Precision: S
Township-range comments: SE4NE4

Survey date:	1986-08-21	Elevation:	4280
First observation:	1986	Slope/aspect:	
Last observation:	1990-08-08	Size (acres):	5

Location:

WEST SIDE OF LOWER COTTONWOOD ROAD, 0.5 MILES NORTH OF COZY CORNERS, 1
MILE WEST OF MISSOULA-POWELL COUNTY LINE.

Element occurrence data:

1986: EST. 3000 PLANTS; FRUIT, LATE FLOWER; ELEMENT IS THE DOMINANT
FORB AT THIS SITE, AND OCCURS IN A SMALL, FENCED PASTURE ON STATE
LAND; DENSEST POPULATION STUDIED. 1990: PLANTS ROBUST; POPULATION
EXPANDED TO INCLUDE ADDITIONAL PASTURES TO THE SOUTH, AS WELL AS ALONG
ROADSIDE, EXTENDING TO COZY CORNERS. POPULATION ESTIMATED AT >3000.

General site description:

GRAVELLY LOAM SOIL; GRAZED PASTURE, ADJACENT TO PINUS PONDEROSA/LARIX
OCCIDENTALIS/PICEA ENGELMANNII FOREST, WITH CENTAUREA MACULOSA,
VERBASCUM THAPSUS, POA PRATENSIS.

Land owner/manager:

STATE LAND - UNDESIGNATED
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)
CLEARWATER STATE FOREST

Comments:

VOUCHER-SHELLY, J.S. (1304) AND G.V. KING, 1986, MONTU.

Information source:

SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.

Grindelia howellii

Occurrence number: 048

Global rank: G3 Forest Service status: SENSITIVE LIST
State rank: S3 Federal Status: C2

Survey site name: SPRING CREEK ROAD
EO rank: D
EO rank comments: 1986: SMALL, ROADSIDE POPULATION. 1990:
GRADED ROAD.

County: MISSOULA

USGS quadrangle: MORRELL MOUNTAIN

Township-range: 016N014W Section: 24 Precision: S
Township-range comments: SW4NE4

Survey date:	1986-08-21	Elevation:	4400
First observation:	1986	Slope/aspect:	
Last observation:	1990-08-08	Size (acres):	1

Location:

WEST SIDE OF LOWER COTTONWOOD ROAD, JUST NORTH OF SPRING CREEK ROAD,
0.44 AIR MILES WEST OF MISSOULA-POWELL COUNTY LINE.

Element occurrence data:

1986: 40 PLANTS, INCLUDING ROSETTES, COUNTED; SMALL, ROADSIDE
POPULATION. 1990: 1 FLOWERING PLANT LOCATED.

General site description:

GRAVEL ROADSIDE; PINUS CONTORTA/LARIX OCCIDENTALIS/ PSEUDOTSUGA
MENZIESII, WITH CENTAUREA MACULOSA, ROSA SPP., POA SPP., VERBASCUM
THAPSUS.

Land owner/manager:

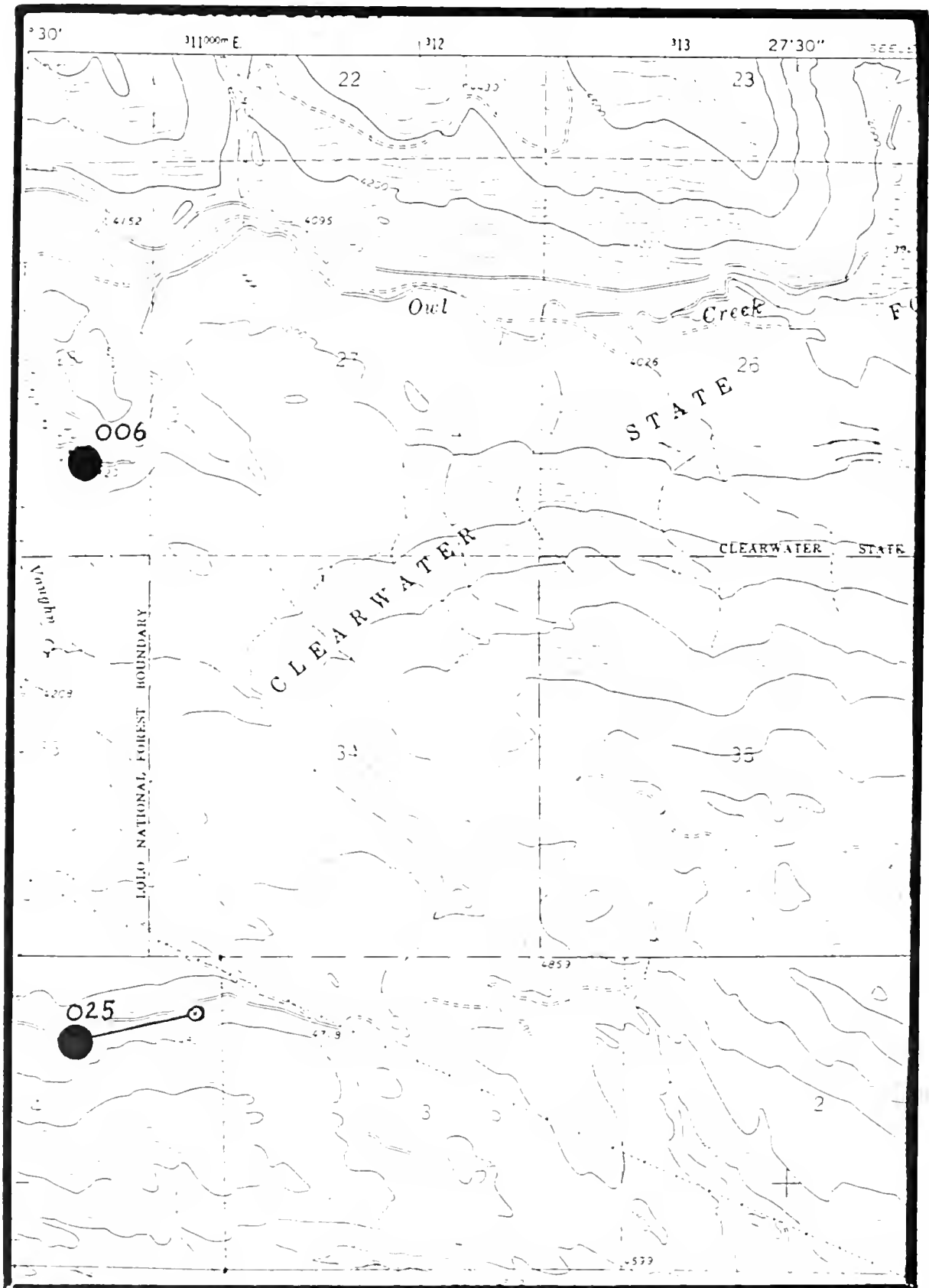
CHAMPION INTERNATIONAL LAND

Comments:

VOUCHER - SHELLY, J.S. (1305) AND G.V. KING, 1986, MONTU.

Information source:

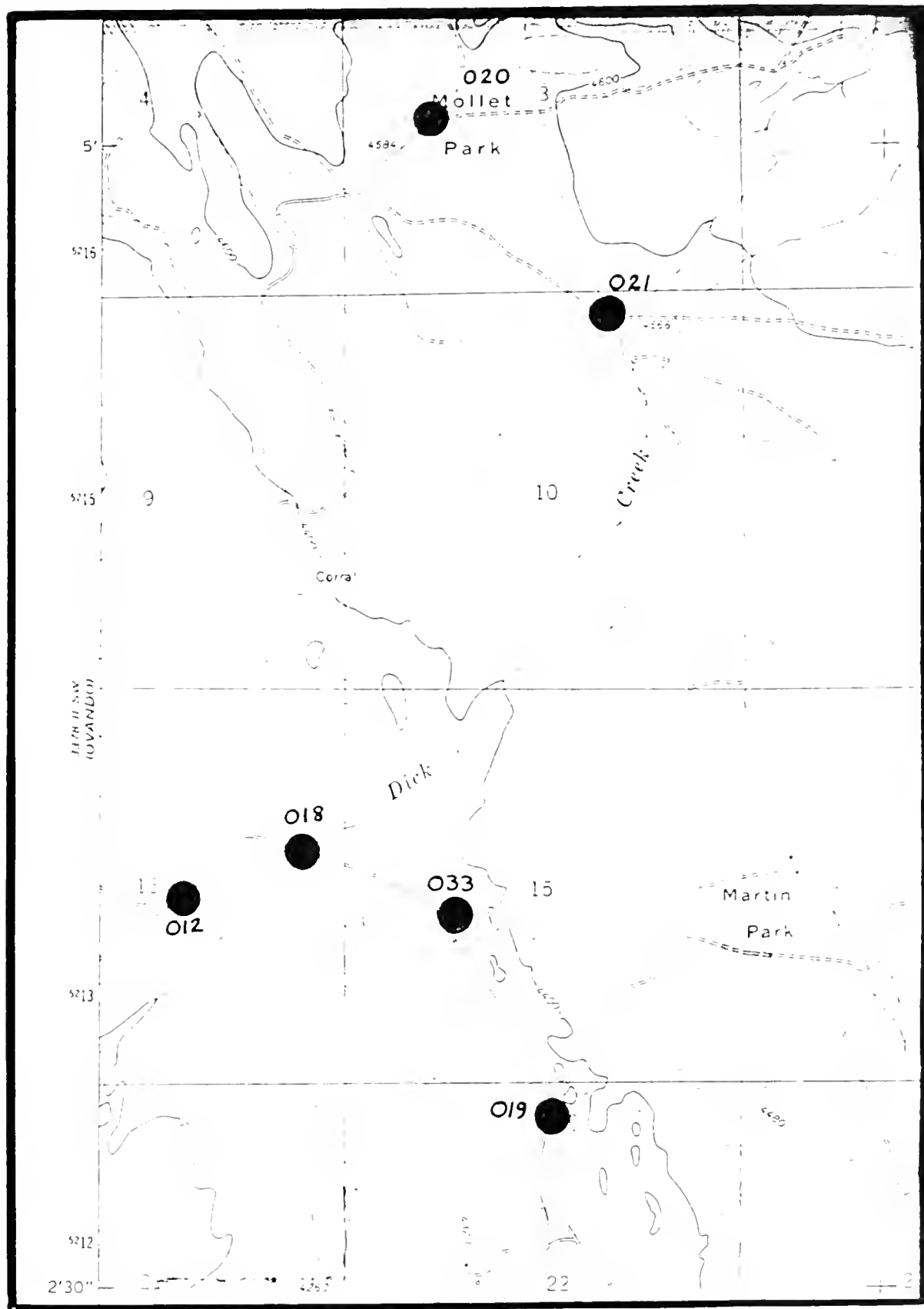
SHELLY, J.S. 1986. FIELD SURVEYS IN MISSOULA AND POWELL COS. OF 25-26
JULY, 28-31 JULY, 2-6 AUGUST & 20-22 AUGUST.



U.S.G.S. Salmon Lake (7.5') Quadrangle

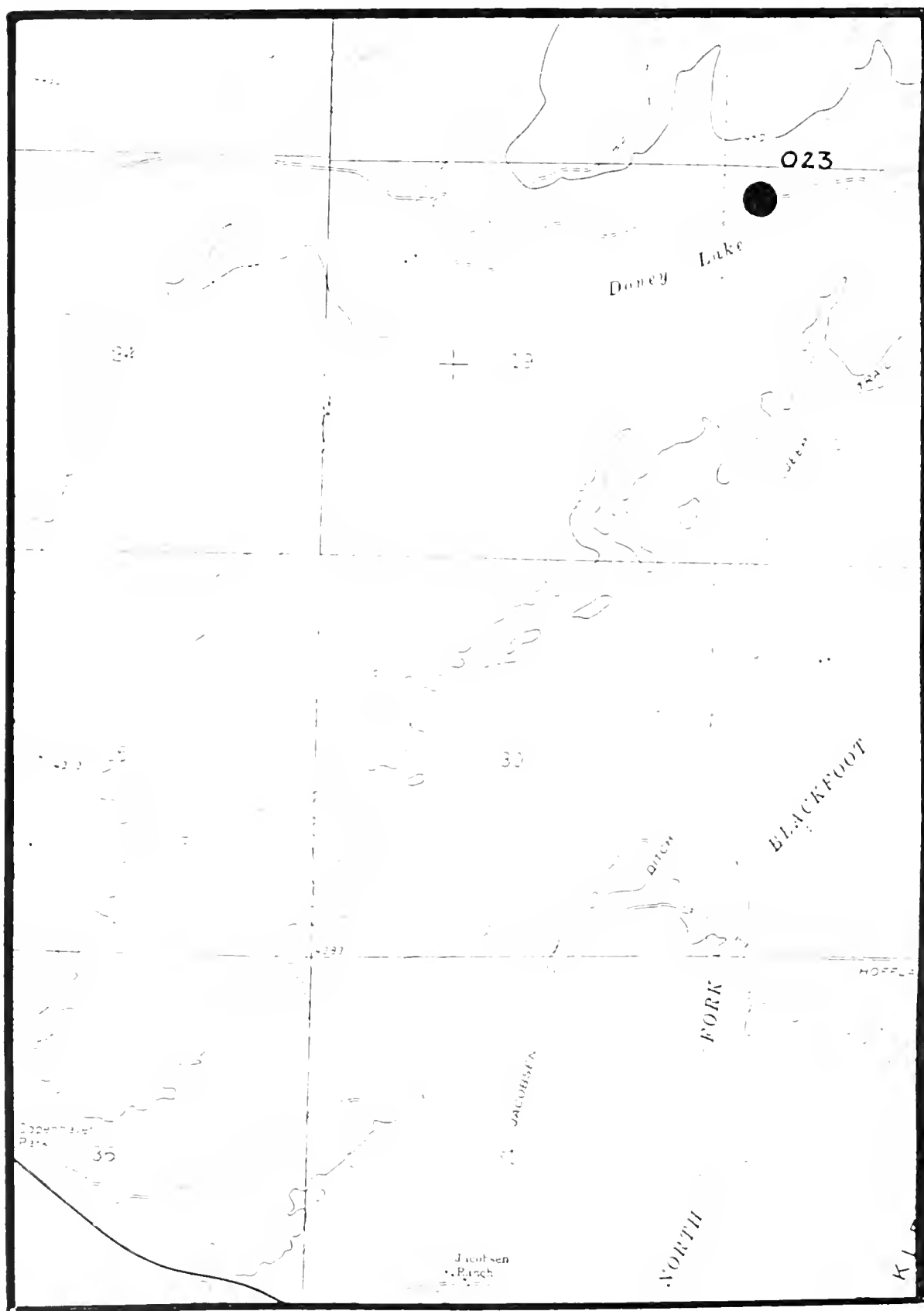
Vaughn Ranch (006)

Placid-Lost Prairie Road (025)

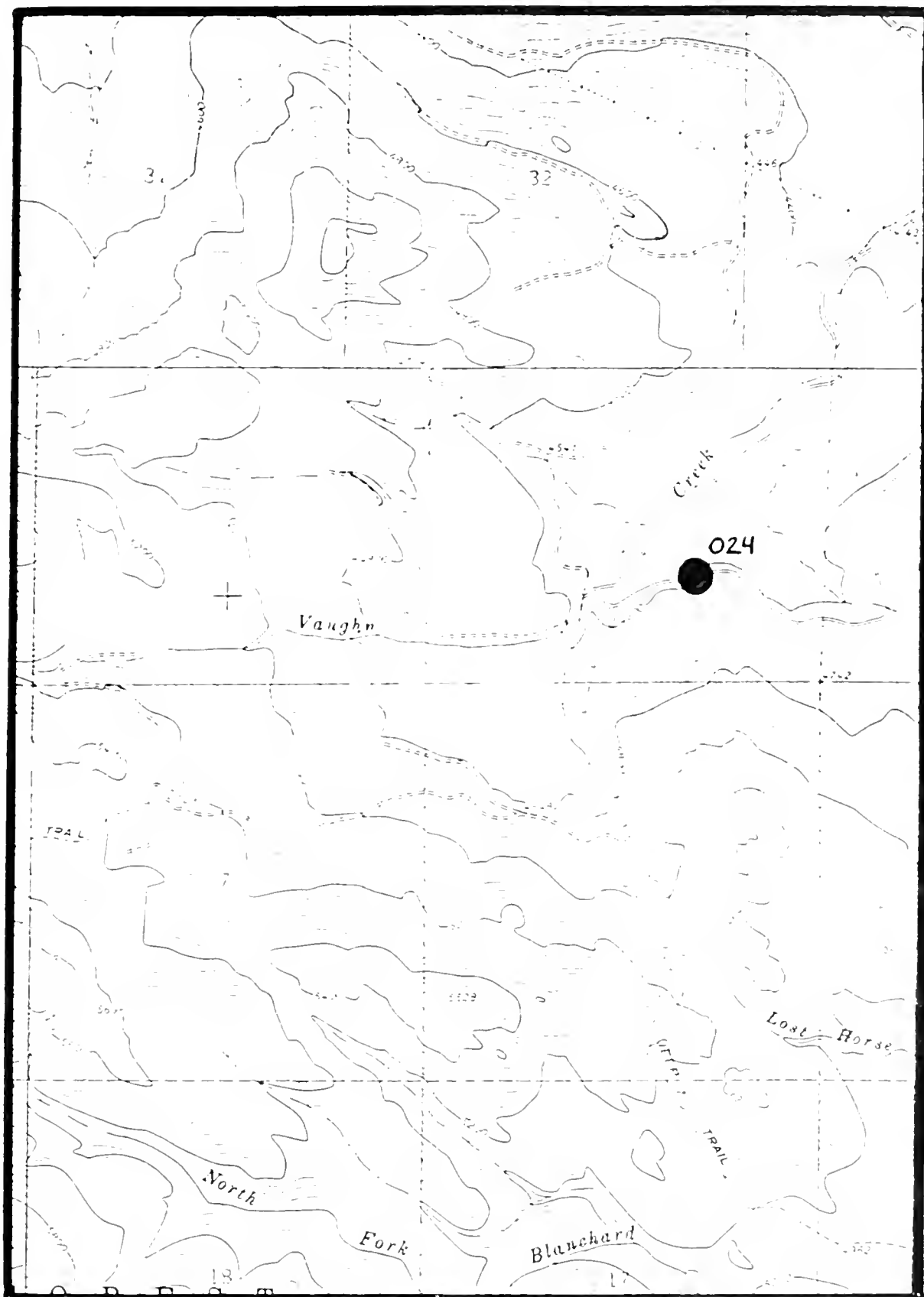


U.S.G.S. Ovando Mountain (7.5') Quadrangle

Jones Lake (012)
Dick Creek (018)
Ovando-Champion (019)
Mollet Park (020)
Mollet Park South (021)
Dick Creek East (033)

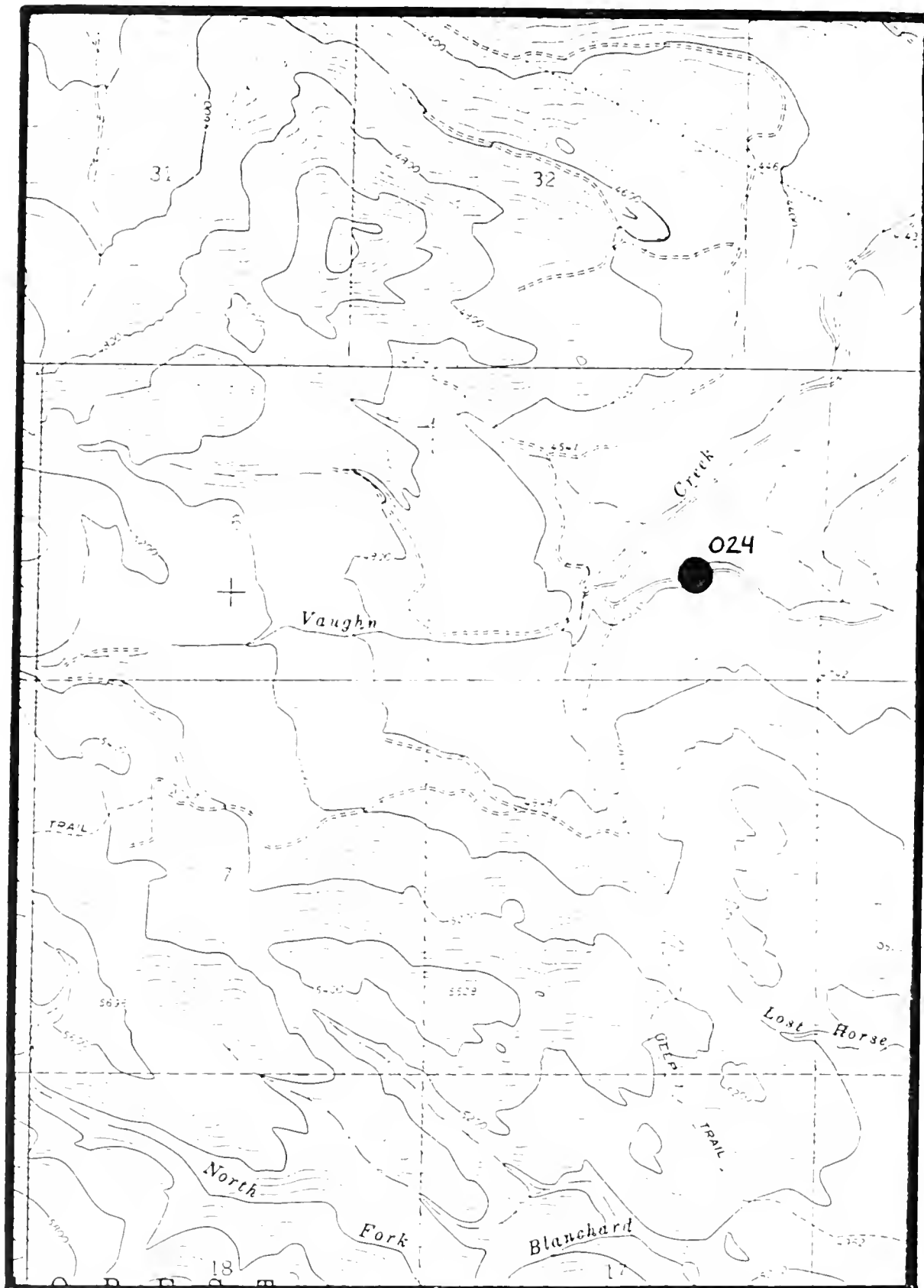


U.S.G.S. Ovando Mountain (7.5') Quadrangle Doney Lake (023)



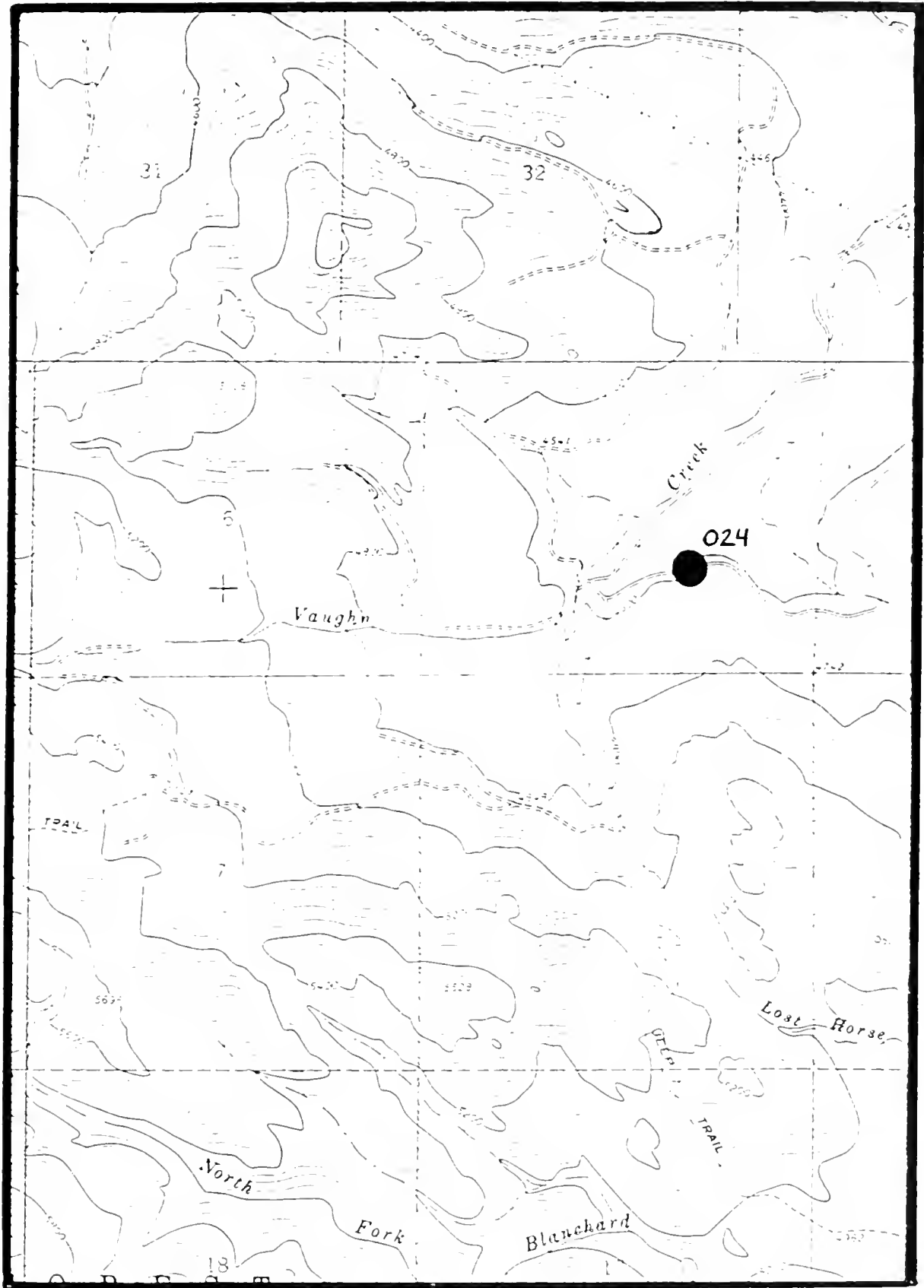
U.S.G.S. Belmont Point (7.5') Quadrangle

Vaughn Creek (024)



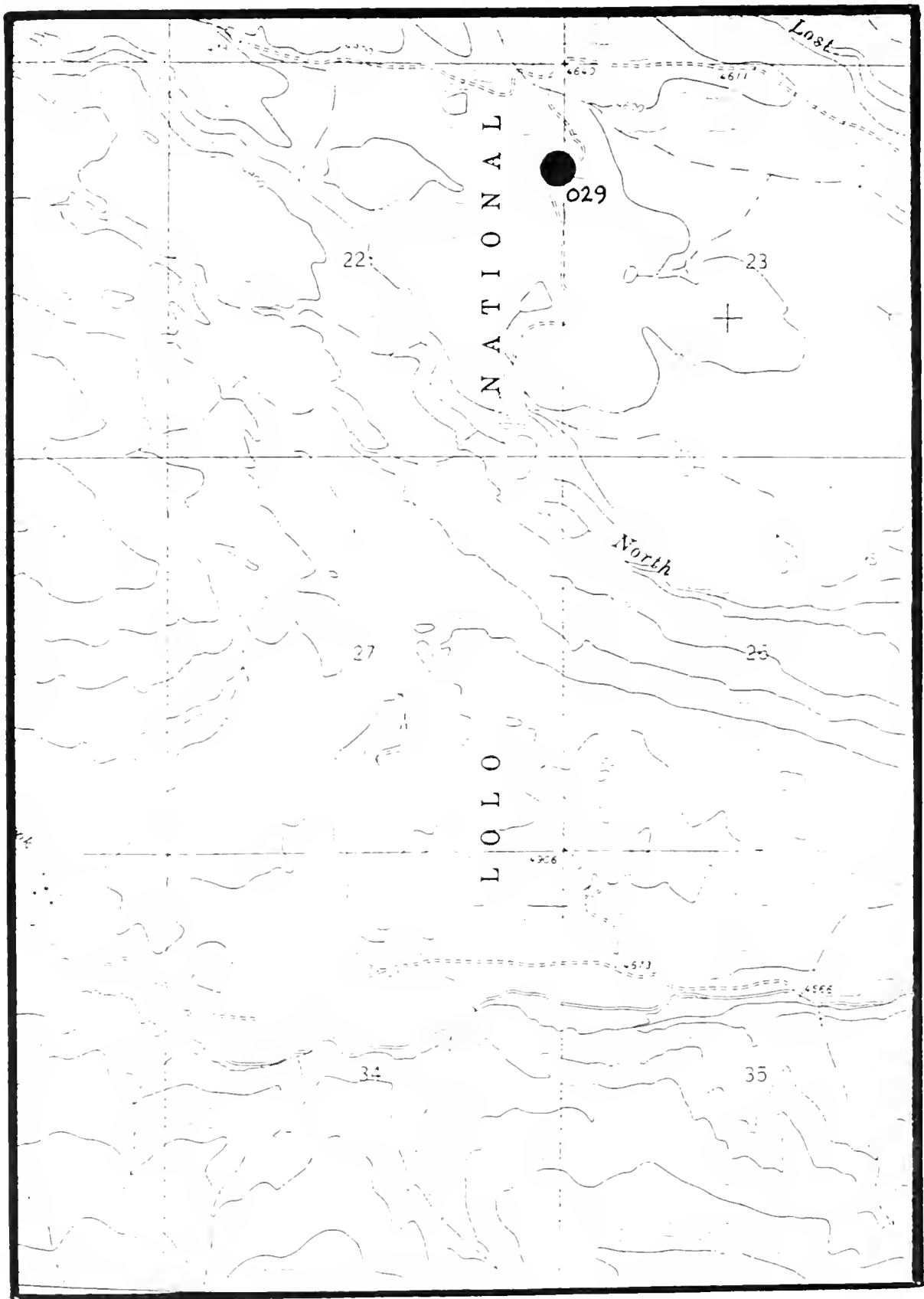
U.S.G.S. Belmont Point (7.5') Quadrangle

Vaughn Creek (024)



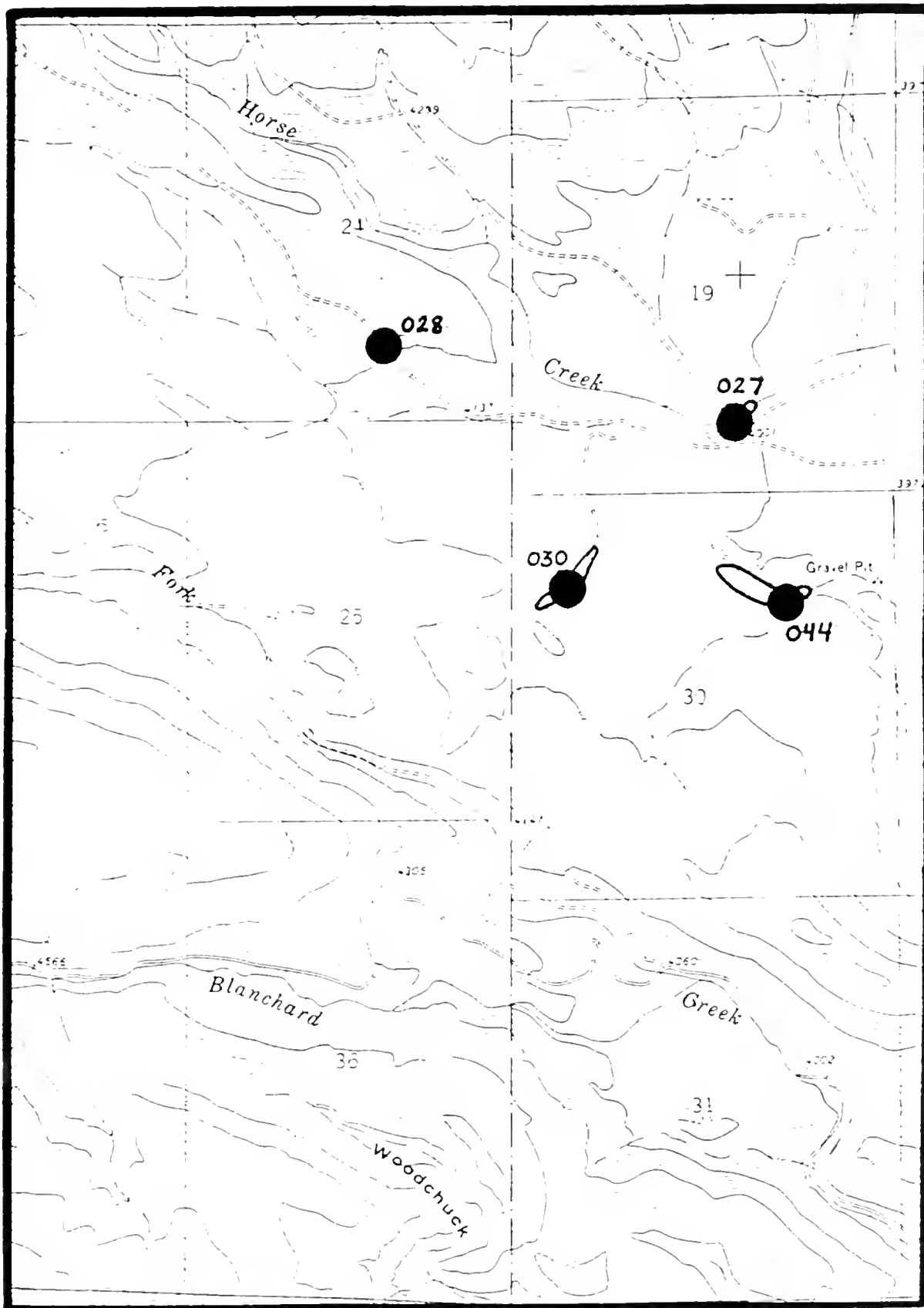
U.S.G.S. Belmont Point (7.5') Quadrangle

Vaughn Creek (024)



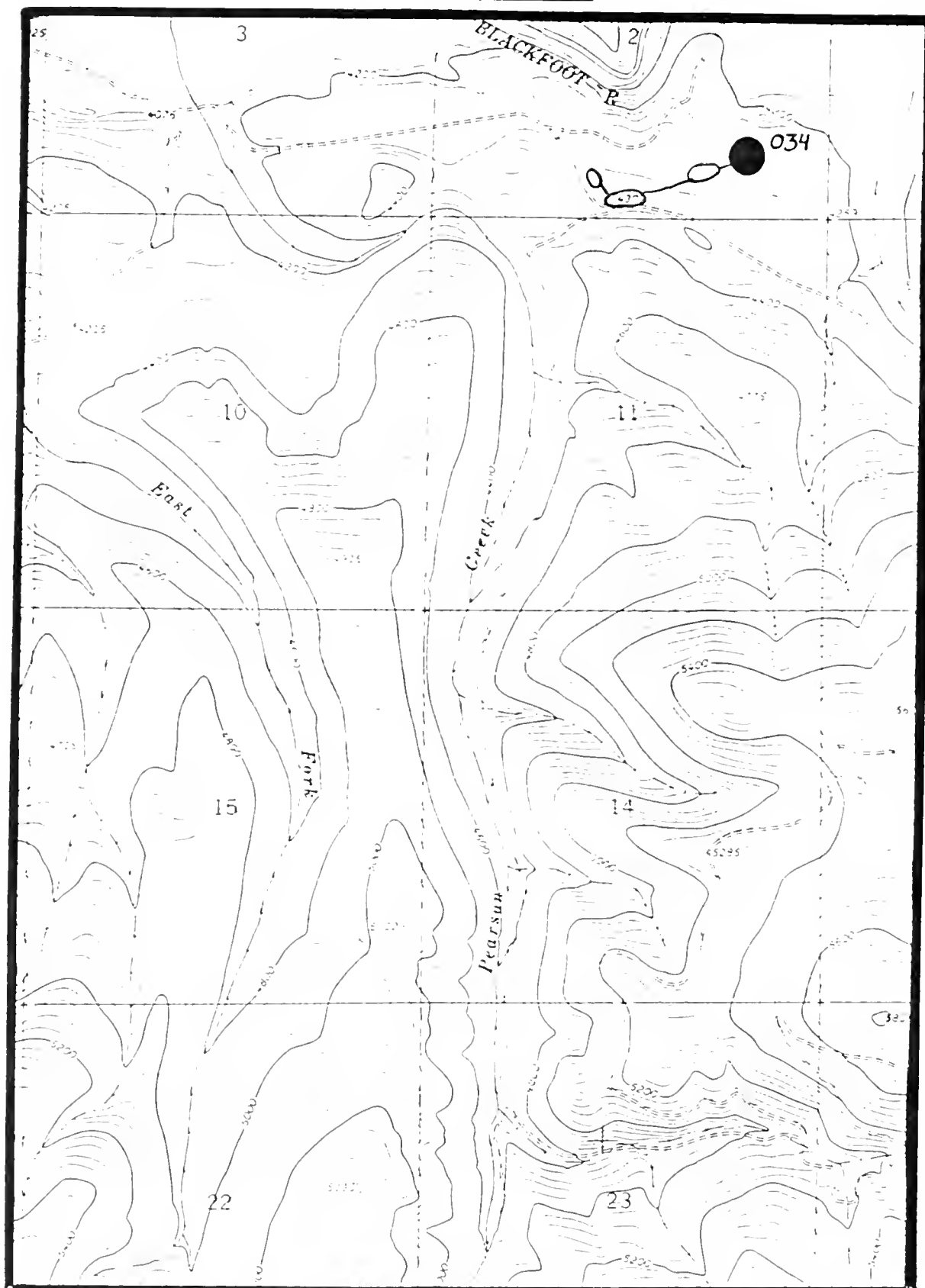
U.S.G.S. Salmon Lake (7.5') Quadrangle

Lost Horse Spur Road (029)

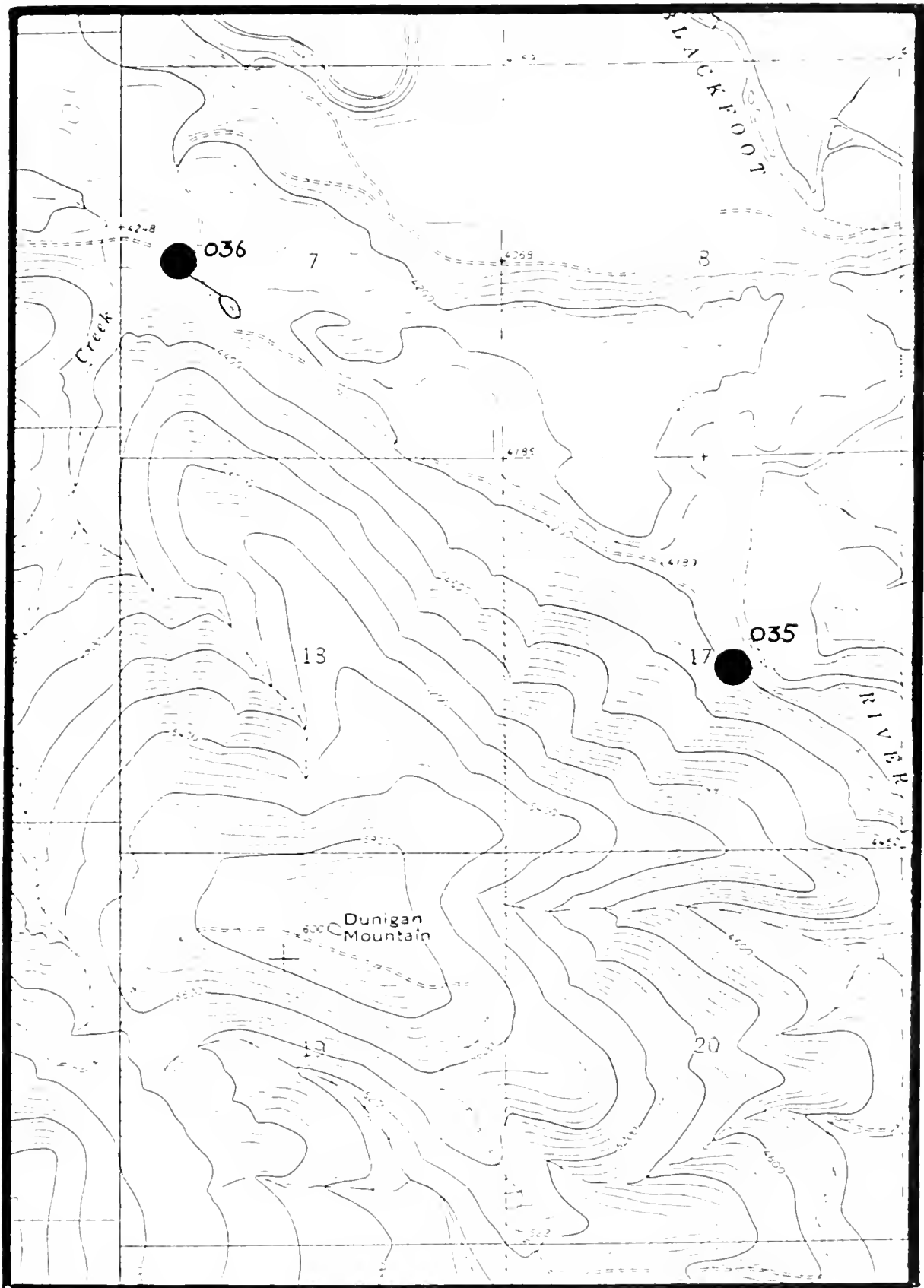


U.S.G.S. Salmon Lake (7.5') Quadrangle

Lost Horse Creek (027)
Lost Horse Road (028)
Lost Horse-Blanchard Road (030)
Clearwater Road (044)



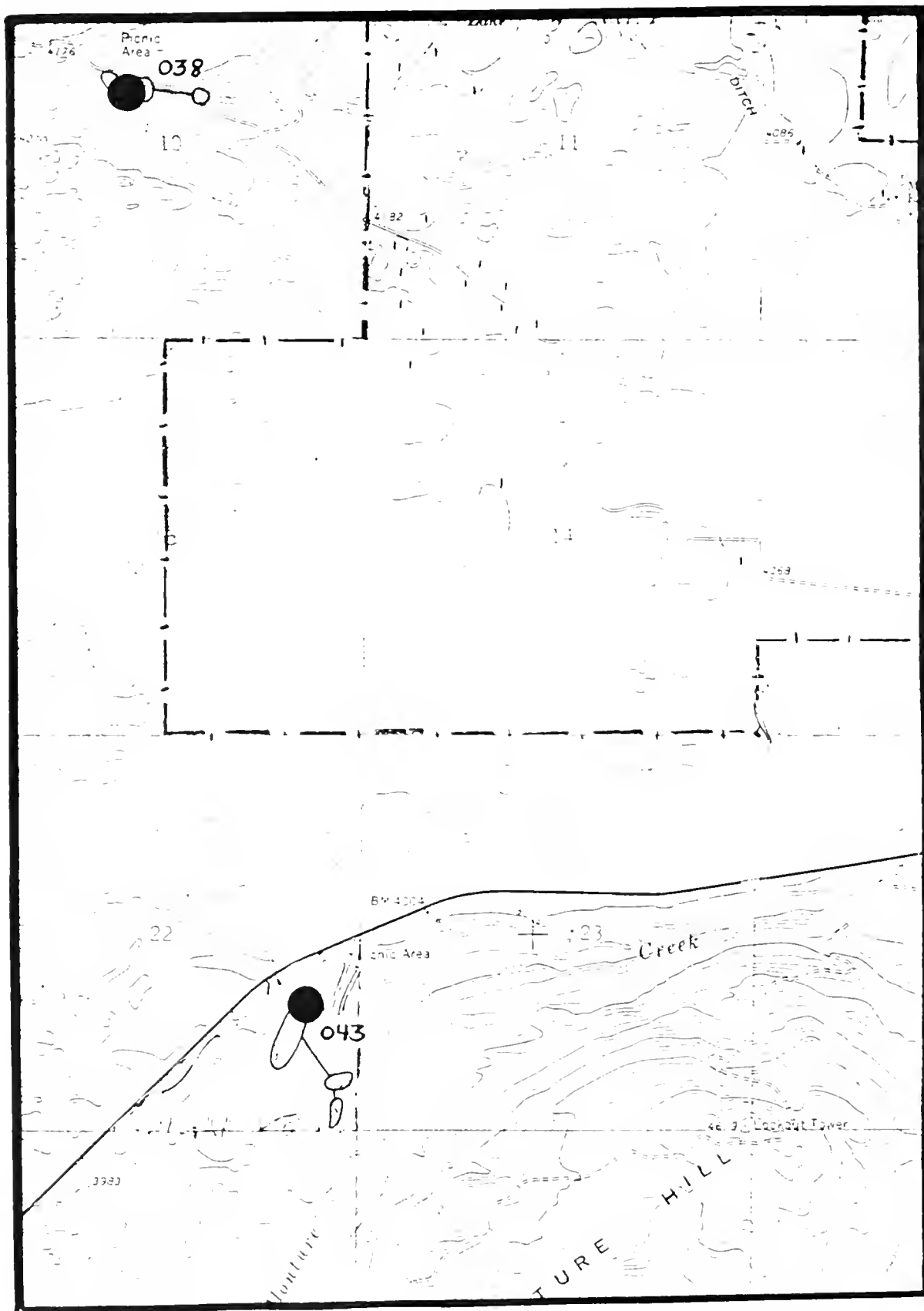
U.S.G.S. Chamberlain Mountain (7.5') Quadrangle Pearson Creek (034)



U.S.G.S. Chamberlain Mountain (7.5') Quadrangle

Blackfoot Roadside (035)

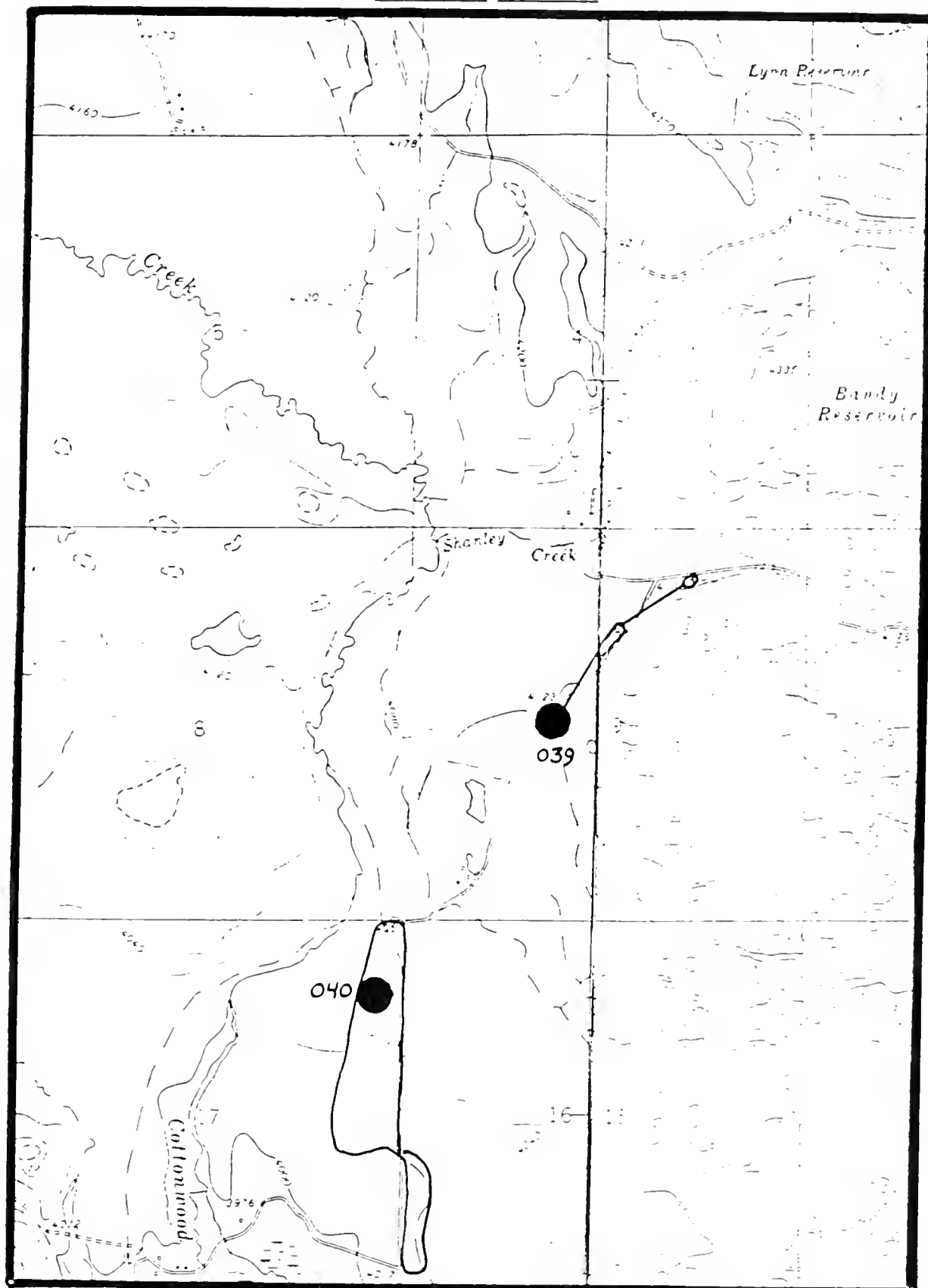
Blackfoot Roadside II (036)



U.S.G.S. Ovando (7.5') Quadrangle

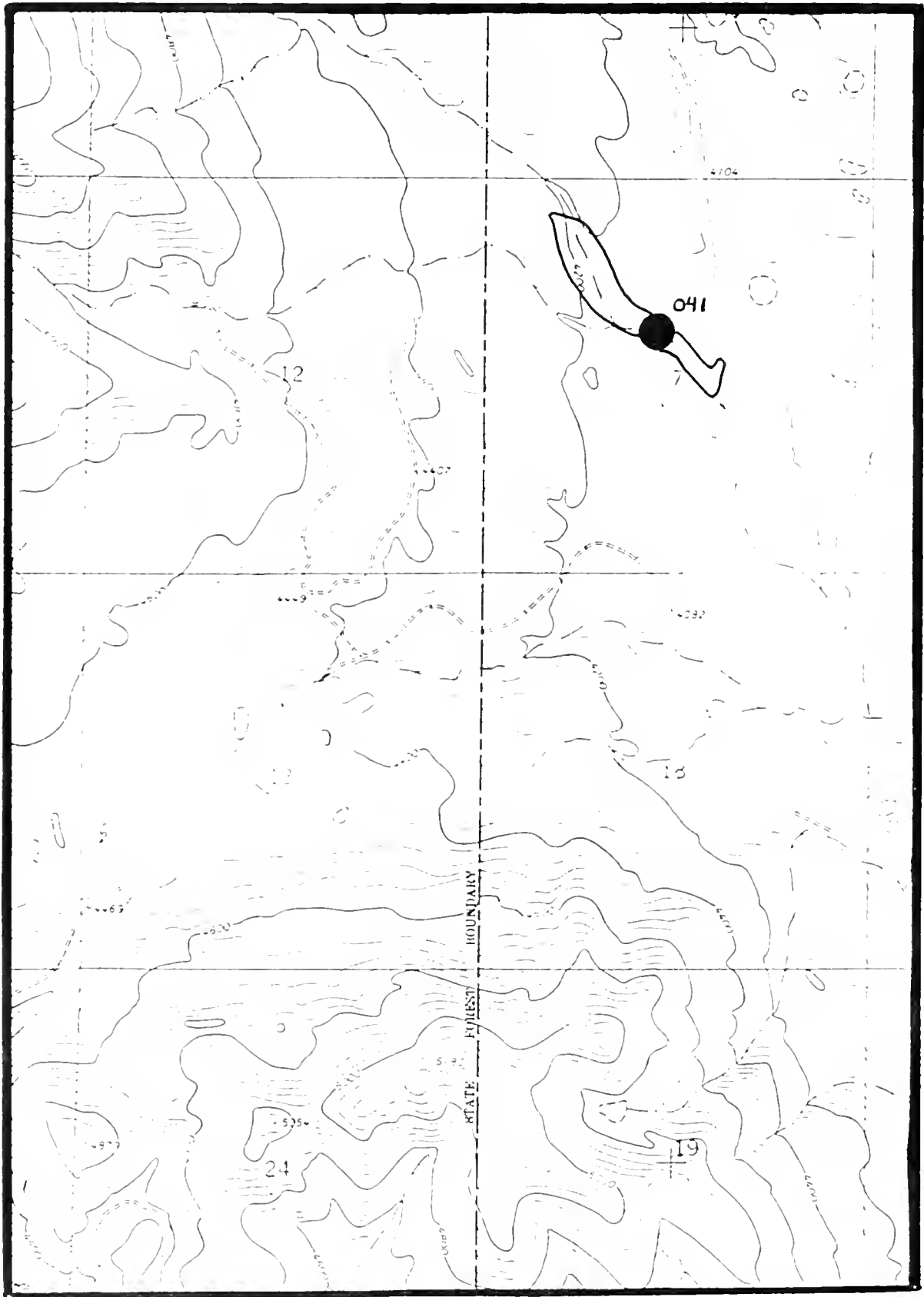
Upsata Lake (038)

Monture Creek Access (043)



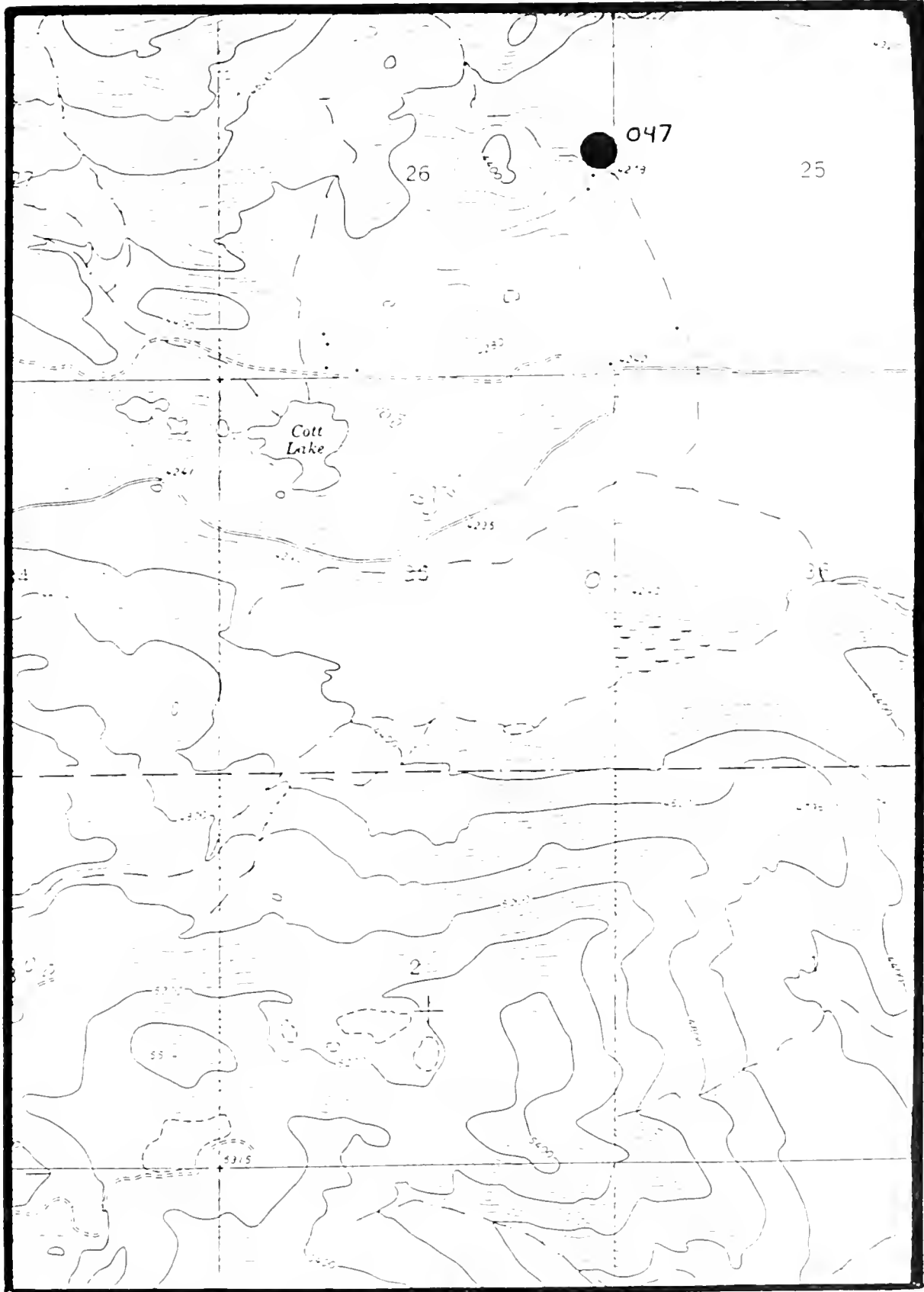
U.S.G.S. Woodworth (7.5') Quadrangle

Upsata-Woodworth Junction (039)
Cottonwood Creek (040)



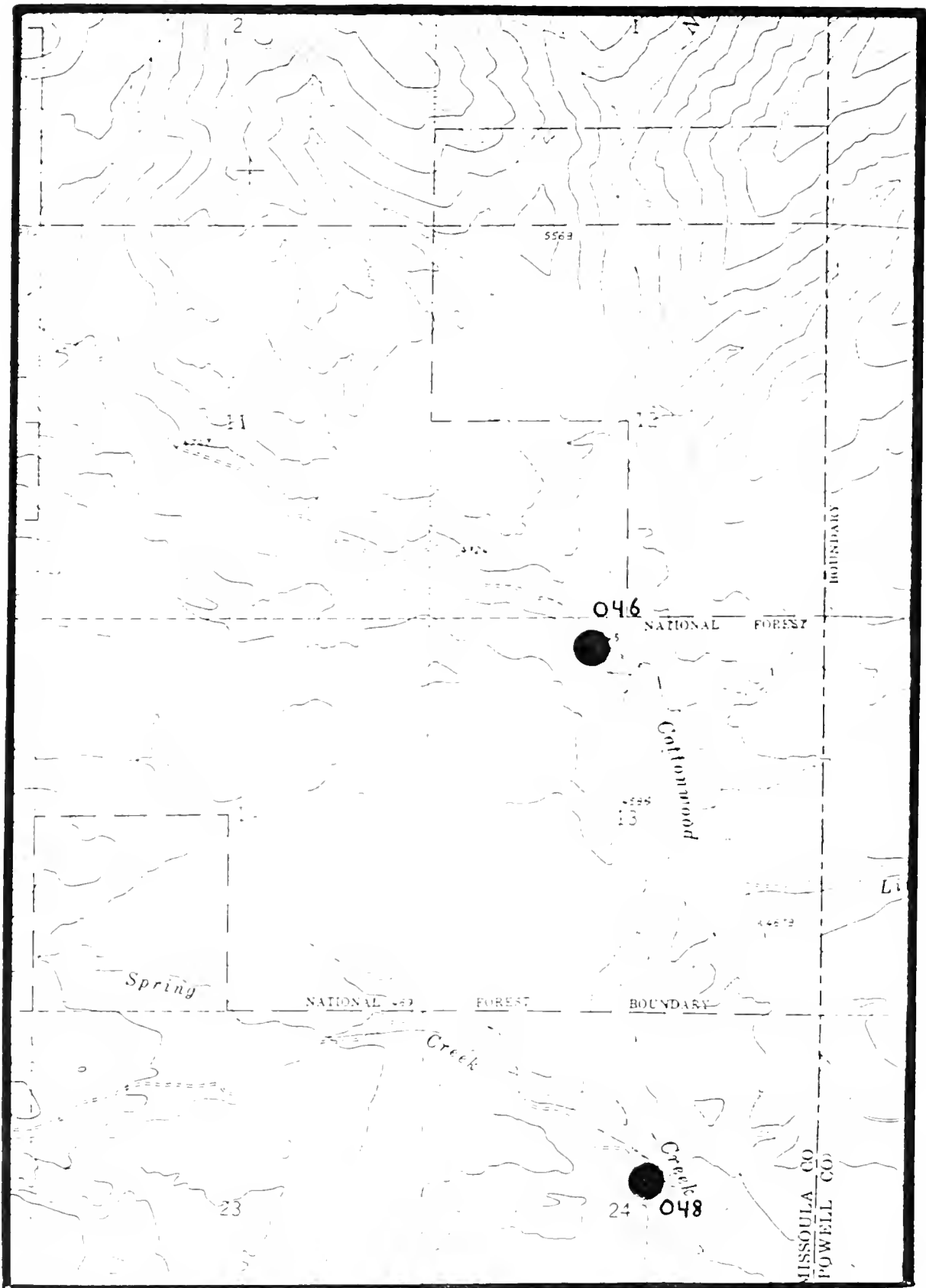
U.S.G.S. Woodward (7.5') Quadrangle

Blackfoot Backroads (041)



U.S.G.S. Woodworth (7.5') Quadrangle

Cozy Corners (047)



U.S.G.S. Morrell Mountain (7.5') Quadrangle Lower Cottonwood Road (046)
Spring Creek Road (048)

MONTANA STATE LIBRARY